NOVEMBER 2025 | ₹ 80.00

BISinfotech

R.N.I. No: DELENG/2019/77352 I VOL 7 I ISSUE 11 I TOTAL PAGES 56 I PUBLISHED ON 1ST OF EVERY MONTH I WWW.BISINFOTECH.COM

COVER STORY

IoT & Edge in Aerospace: Safer, Smarter Skies

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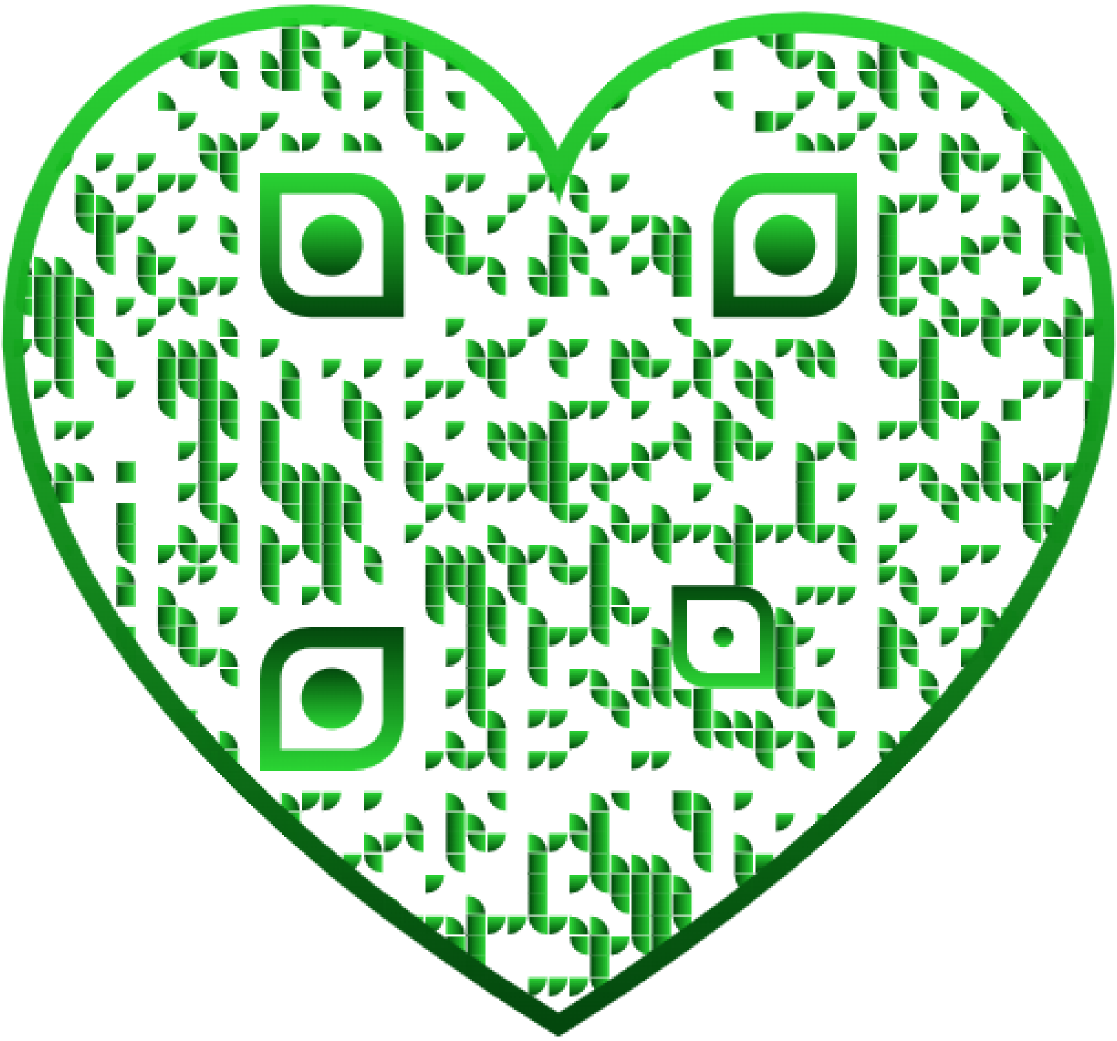

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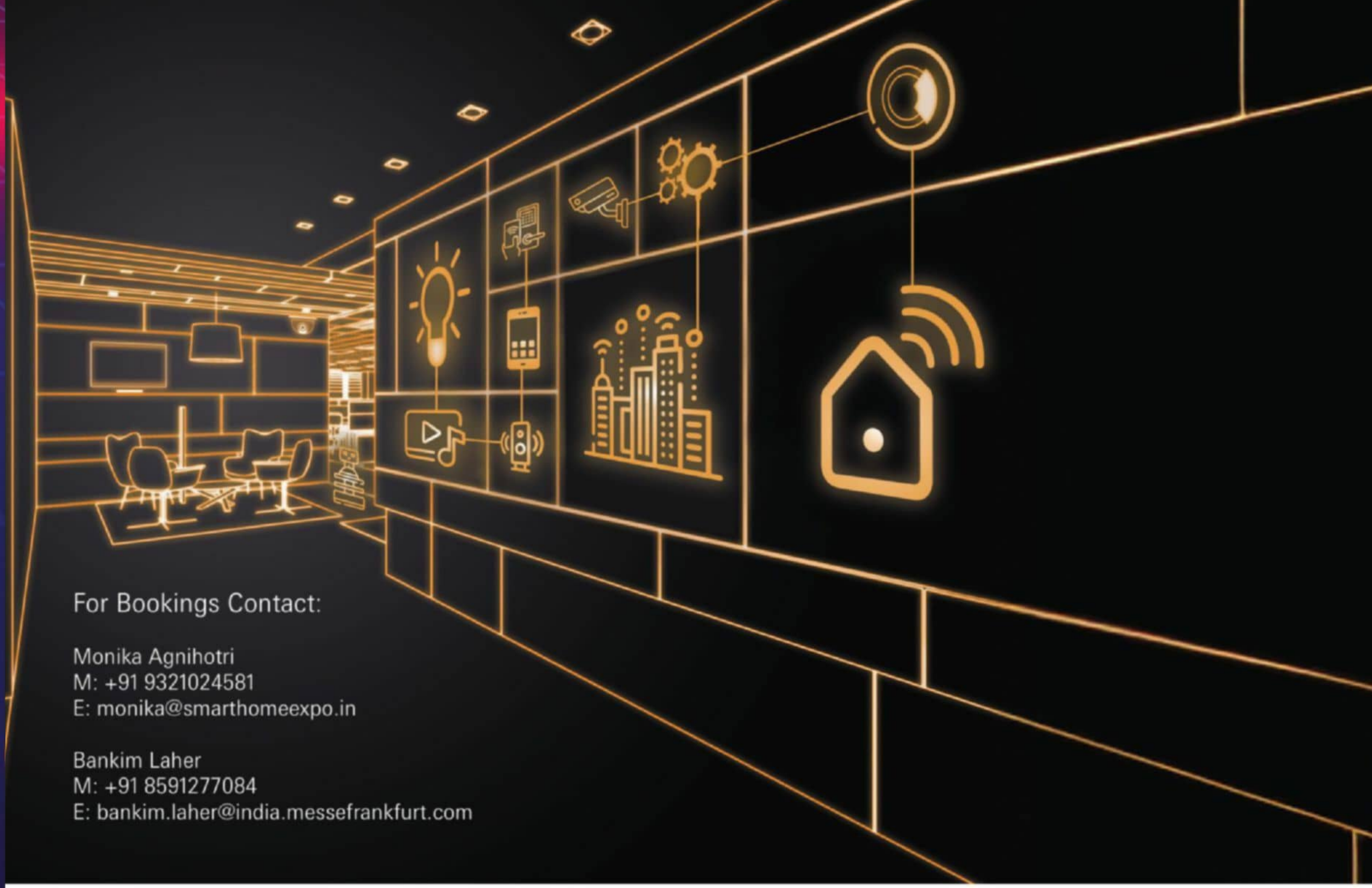

EDITOR'S NOTE

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BISinfotech

Dear Readers,

Welcome to this Special Edition of **BISinfotech**, where we explore how the convergence of **IoT and edge computing** is reshaping the future of aerospace and aviation.

As aircraft evolve into highly connected, data-aware systems, real-time intelligence is becoming central to ensuring safety, efficiency, and mission readiness. Our cover story, **"Smart Skies: IoT and Edge Computing in Modern Aviation,"** examines how smart sensors, onboard analytics, and distributed computing are transforming everything from predictive maintenance and avionics monitoring to autonomous flight and next-generation air mobility.

In this issue, we highlight the rapid advancements taking place across **sensor integration, secure networking architectures, power electronics, and embedded computing.** These developments are enabling aircraft to make faster and more reliable decisions at the edge—reducing downtime, enhancing operational awareness, and improving overall flight safety.

We also explore how the aerospace ecosystem is preparing for a new era of **autonomous air systems and urban air mobility,** where responsiveness, data integrity, and distributed intelligence will define mission success.

At BISinfotech, our mission is to chronicle and accelerate India's technological transformation. As aviation enters a new phase—where connectivity and computation are as critical as aerodynamics—we believe this conversation is both timely and essential.

We invite you to explore, engage, and contribute to shaping the dialogue on the **future of flight.**

Here's to safer skies, smarter systems, and a new horizon of aerospace innovation.

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Bisinfotech is printed, published, edited and owned by Manas Nandi and published from 303, 2nd floor, Neelkanth Palace, Plot No- 190, Sant Nagar, East of Kailash, New Delhi- 110065 (INDIA), Printed at Swastika Creation 19 DSIDC Shed, Scheme No. 3, Okhla Industrial Area, Phase-II, New Delhi- 110020

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C|O|N|T|E|N|T

08 **COVER STORY**
IoT & Edge in Aerospace: Safer, Smarter Skies

12 **BIG PICTURE**
Building Global Connections Locally: Mouser's Vision for India's Electronics Ecosystem

37 **TECH FEATURE**
Accelerating High-Speed Network Test from Lab to Field

BIG PICTURE

VIAVI CTO Sameh Yamany on 6G, AI, and Quantum-Safe Networks 16
Delta Electronics: Driving Smart Automation for a Smarter India 24
Harwin's Vision for India: Engineering Reliability and Innovation for the Future 30
The Architecture Behind Intelligence: Designing the Future of Semiconductor Packaging 38

TECH FEATURE

Zero Trust in the 5G and Cloud Era: Redefining Secure Work for Indian Enterprises 14
Industrial AI without the hype: what real-world use cases look like today 27
New power technologies for industry modernization! 34
India's Semiconductor Transformation: From Design Engine to AI Powerhouse 48
India: A Key Pillar of TDK's Global Strategy 50

T&M

19 Spectrum Unveils DN6.33x Multi-Channel GHz Digitizers

NEWS

20 ABB India Launches Rare-Earth-Free IE5 Industrial Motors

PEOPLE

41 Dell Appoints Atul Mehta as India Channel Leader

STATE FOCUS

42 Tamil Nadu Takes Flight: Inside India's Emerging Aerospace Powerhouse

DISTRIBUTOR

46 Arrow Electronics Launches AI Assistant for Cloud Partners

LAUNCHES

52 Infineon Launches MOTIX SoC Family for Compact, Cost-Efficient Motor Control

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IoT & Edge in Aerospace: Safer, Smarter Skies

As aircraft become increasingly software-defined and data-driven, **IoT sensors and edge** computing are transforming how safety, reliability, and efficiency are managed in real time. Today's connected aircraft can monitor structural integrity, engine performance, environmental conditions, and mission-critical avionics continuously — and make decisions instantly, at the edge. This shift is enabling a move from scheduled and breakdown maintenance to real-time condition-based and predictive maintenance, leading to improved aircraft readiness, reduced operational downtime, and enhanced flight safety.

To understand how this transformation is unfolding, we spoke with two industry leaders shaping the future of aerospace systems in India: **Mr. K. A. Prabhakaran, Senior Vice President & Chief Technology Officer, Cyient Limited,** and **Mr. Vijay Ananth, Chief Operating Officer & Chief Information Security Officer, Data Patterns.** Both organizations are at the forefront of developing **smart avionics, secure edge computing modules, sensor-integrated systems, and advanced maintenance analytics.** Their perspectives highlight how Indian aerospace is rapidly aligning with global trends in **autonomous operations, digital flight control, secure networking architectures, and AI-enabled decision systems** — defining the next era of **safer, smarter skies.**

How are IoT-enabled sensors and edge computing transforming real-time aircraft monitoring and predictive maintenance?

Mr. Vijay Ananth, Chief Operating Officer & Chief Information Security Officer, Data Patterns said " a. Typically, Aircraft's frames are designed to be in service for a minimum of 40+ years. LRUs fitted in the aircraft will have varied life based on Mean Time Between Failures (MTBF). MTBF of LRUs may MTBF is calculated based on Part Stress Modelling and it varies from few hundred to thousands of hours depending on various parameters like component grade, temperature of operation etc. Present approach for proactive and preventive maintenance is to off load the LRUs to reverify for its functionalities, asses its residual life etc based on number of hours it has been part of flying. This method though was serving its purpose for a long time; there are possibilities, this method may lead to reduced usage of LRU or over usage of LRU. Since its purely based on number of hours under certain conditions, the conditions are not captured in real time and considered based on a standard operating environment. Hence, even if the environment is much favourable, still the hours of operation will prevail. b. By using IoT sensor based real time monitoring of the environment, LRU performance and using edge computing based residual life estimation, accurate analysis is possible for optimal usage of LRUS. c. Hence instead of carrying out maintenance checks on a timely basis utilizing manual efforts, it is completely automated to enable need based maintenance. d. This reduces the down time of the aircraft, unnecessary change/update of LRUs, unnecessary manpower for maintenance etc e. As such, similar approaches were in place for the engines for a long time, by extending it to various other sections of the aircraft, it makes the aircraft and the related operations safe."

Mr. K. A. Prabhakaran, Senior Vice President & Chief Technology Officer, Cyient Limited said "IoT-enabled sensors and edge computing are shifting the maintenance from empirically planned and breakdown maintenance to real-time condition based maintenance and predictive maintenance. This will improve aircraft availability and at the same time cut maintenance costs. Edge computing in engines, airframe and avionics help identify exceedences on aircraft landing and the maintenance crew is better prepared for a quicker turn around. Edge controllers monitor temperature, air quality, humidity, and pressure data for predictive cabin system maintenance and simultaneously improve passenger comfort substantially."

How can aerospace firms ensure data reliability, cybersecurity, and low-latency edge processing?

Mr. Vijay Ananth, Chief Operating Officer & Chief Information Security Officer, Data Patterns said "a. Data reliability shall be ensured through redundancy of sensors and with boundary conditions. This will ensure, no one sensor failure will lead to wrong decision, and all sensor failure shall be identified through boundary conditions. b. Cybersecurity is the biggest challenge in scenarios since any dependency on external network connections may compromise the integrity of the system. This shall be avoided through zero trust localized computing and using different types of encryptions and zero trust methodologies for external interfaces. c. With the introduction of AI chipsets, utilizing Processor's TPUs the edge computing timing requirements of sensor processing has drastically reduced and provides advanced signal processing methods to provide decisions."

**Mr. Vijay Ananth,
Chief Operating Officer & Chief
Information Security Officer,
Data Patterns**

> *"Data encryption will be key to ensure that the data integrity is maintained. Using digital signatures or blockchain-based logs for tamper-evident traceability of flight and maintenance data is a viable strategy."*

Mr. K. A. Prabhakaran, Senior Vice President & Chief Technology Officer, Cyient Limited

> “Autonomous aircraft need near millisecond situational awareness which can only be provided thru edge sensing. Fusion of data at the edge will allow better Obstacle and collision avoidance and agile flight controls.”

Mr. K. A. Prabhakaran, Senior Vice President & Chief Technology Officer, Cyient Limited said “Periodic sensor calibration (or better still self calibrating sensors) and data validation at the edge will ensure data collection on the aircraft is reliable. Use of the appropriate processors on the edge and the deployment of lightweight, but effective, AI/ML models will be key. Advances in both Hardware and AI have contributed to make the edge processing very effective in modern times. Treat safety, security, and certification as architecture constraints—not afterthoughts. Align to DO-178C/DO-254 (airborne), DO-326A/ED-202A (cybersecurity), and ARP4754A/4761 (system/safety). Use AI to access quality, identify and bring efficiencies on documentation and compliance. Data encryption will be key to ensure that the data integrity is maintained. Using digital signatures or blockchain-based logs for tamper-evident traceability of flight and maintenance data is a viable strategy. Aircraft and systems designers should use partners with niche capabilities in data AI and Cybersecurity. These aspects need to well integrated with the design process to make the best use of these technologies.”

What innovations in power electronics and testing technologies are enhancing safety and sustainability?

Mr. Vijay Ananth, Chief Operating Officer & Chief Information Security Officer, Data Patterns said “a. Power electronics has come a long way and innovations on solid state power electronics has paved the way for smaller and smarter devices. This includes graceful degradation of systems. By adding intelligence in the power electronics circuits and testing it for various failure modes, the system shall enhance its performance by operating on a ideal conditions. Instead of having a situation where the system is working or not working, by utilizing the innovations, the system shall be made to operate on reduced functionality during section failures and provide an opportunity for the pilot/aircraft to reach the destination safely.”

Mr. K. A. Prabhakaran, Senior Vice President & Chief Technology Officer, Cyient Limited said “Urban Air mobility and sustainability are dring towards more electric aircraft. Power electronics plays a key role in these platforms. Innovations in power electronics are driving major advances in both safety and sustainability. The commercial viability and adoption of wide-bandgap semiconductors such as silicon carbide (SiC) and gallium nitride (GaN) has improved efficiency, reduced heat generation, and enabled more compact systems. Solid-state circuit breakers and intelligent converters now offer faster fault detection and arc free protection enhancing overall safety. Advanced testing technologies like digital twins, hardware-in-the-loop simulation, and AI-based anomaly detection are enabling predictive maintenance and safer validation of complex systems. These methods have improved availability and reduced breakdown maintenance cycles.”

What role will IoT-edge convergence play in shaping the future of avionics and autonomous flight?

Mr. Vijay Ananth, Chief Operating Officer & Chief Information Security Officer, Data Patterns said “a. Unlike manned aircraft, unmanned aircraft and autonomous flying requires much more sensor data for real time decision making. Digital Flight Control Computers (DFCC / FCC) are becoming increasingly complex due to the high demand for fully autonomous operation including saving the aircraft and surroundings during adverse situation. b. By having IoT-edge based sensing and computing, the decisions are localized, and redundancy implementation effectively ensures continuous and optimal functioning of all the systems. While centralized FCC shall be responsible for flight and navigation, IoT edge based systems shall ensure required functionality of all subsystems. c. IoT-edge based systems shall also enable remote operations of the aircraft more efficient since some of the decisions shall be taken within the system instead of relying on the communication link between the ground pilot and aircraft.”

Mr. K. A. Prabhakaran, Senior Vice President & Chief Technology Officer, Cyient Limited said “The convergence of IoT and Edge is a great enabler for distributed Avionics and autonomous flight architectures. Avionics which has traditionally been thru centralised computing devices will move more towards computing in the sensors itself , thereby reducing the need for large processing powers. The decisions will be more real-time and will avoid delays making the systems more responsive. Autonomous aircraft need near millisecond situational awareness which can only be provided thru edge sensing. Fusion of data at the edge will allow better Obstacle and collision avoidance and agile flight controls. IoTand edge convergence transforms avionics into a self-aware, distributed system — essential for fully autonomous and safe flight operations.”

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Building Global Connections Locally: Mouser's Vision for India's Electronics Ecosystem

Kevin Hess
Senior Vice President of Marketing, Mouser Electronics

> *"Engineers must not only master their immediate specializations but also stay informed about software tools, sourcing methods, and industry trends. Product development cycles are getting shorter, so adaptability and continuous learning are key."*

At Electronica India 2025, Mouser Electronics reaffirmed its commitment to India's rapidly evolving electronics landscape. As one of the world's leading authorized distributors of semiconductors and electronic components, Mouser continues to play a pivotal role in bridging global technology innovation with local design and manufacturing excellence. With India emerging as a hub for design-led manufacturing, the company's strategic focus on digital enablement, localized services, and engineer education stands stronger than ever. **Mr. Manas Nandi** (Editor in Chief, **BISinfotech**) sat down with **Mr. Kevin Hess**, Senior Vice President of Marketing at **Mouser Electronics**, to discuss the company's participation at Electronica India 2025, its vision for the Indian market, and how Mouser is leveraging digital transformation and AI to empower engineers and accelerate innovation.

What are Mouser's key focus areas at Electronica India 2025, and how do such events strengthen your customer engagement?

India is one of our most promising markets, and Electronica India provides a great platform to connect directly with customers. In today's digital world, most interactions happen online, so meeting people face-to-face adds a personal dimension that's invaluable. It allows us to understand customer needs better, introduce our capabilities to new partners, and explore fresh opportunities. Once that first connection is made, our focus is always on nurturing it into a long-term relationship.

With more than three decades of experience in this industry, what do you see as the biggest transformation in electronic component distribution?

The evolution has been extraordinary. When I joined Mouser, the Internet was not even part of our business model. Back then, our printed catalogs were the primary tool for customers, updated every few months. Today, everything is digital — our catalog is online, instantly updated, and accessible to engineers anywhere in the world. This digital shift has not only transformed the way we operate but also enabled Mouser to become one of the top global distributors.

Is Mouser working on localized offerings for India, especially in terms of pricing and online transactions?

Absolutely. Our online catalog already displays prices in Indian rupees, and we're working toward enabling complete online transactions soon. India is emerging as a manufacturing and design powerhouse, and we're aligning ourselves with that momentum. The next decade holds tremendous potential here, and Mouser intends to be part of that growth story.

Mouser is well-regarded for its content-driven approach and knowledge-sharing with engineers. How does this strengthen your engagement with the design community?

We've always believed that a distributor's role goes beyond supplying components. Engineers depend on us to stay informed about the latest products, design trends, and technologies. Our global team of engineers produces rich technical content — articles, videos, and design resources — that help our customers stay ahead. By collaborating closely with manufacturers, we ensure that engineers have access not only to the newest components but also to the knowledge needed to use them effectively.

How is Mouser leveraging AI to enhance its digital platforms, customer experience, and supply chain efficiency?

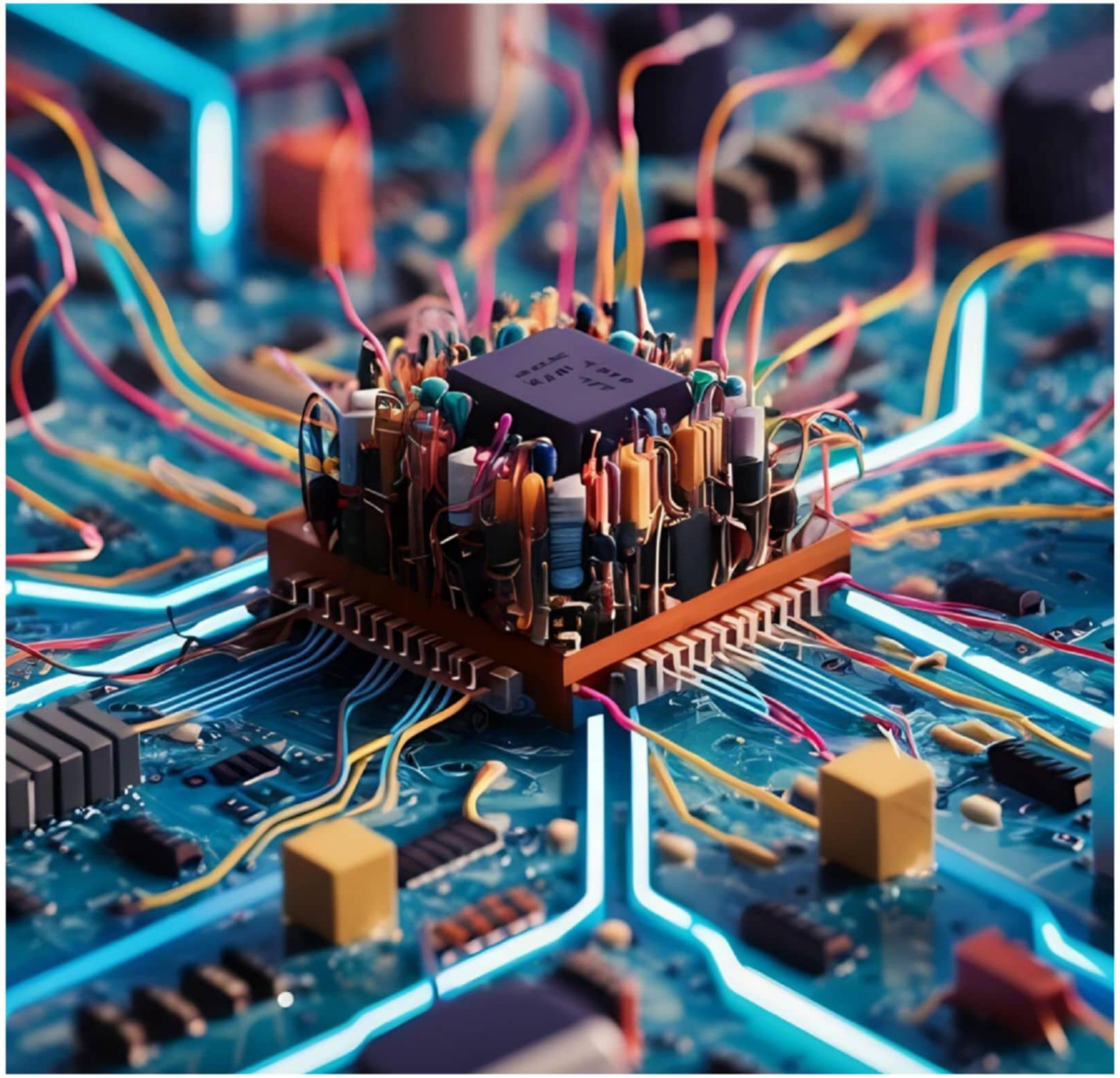
AI is already making a significant impact across our organization. On our website, for instance, AI enhances search capabilities — it helps customers find the right components faster and more accurately. It also learns continuously, improving results over time. Beyond that, AI enables our teams to work more efficiently, manage logistics smarter, and provide a more personalized user experience. I see AI as a defining force in our industry over the next five years.

Which emerging technologies are driving demand, and what is your broader vision for Mouser?

While AI captures much of the global spotlight, we're seeing massive traction in enabling technologies — particularly IoT and automation. IoT continues to revolutionize how devices communicate, while automation enhances productivity by allowing humans and machines to collaborate more effectively. Mouser's mission is to ensure engineers can access the latest components for these technologies as soon as they hit the market. We aim to remain a trusted partner for innovators, helping them bring their designs to life faster.

What advice would you offer to young engineers starting their careers or engaging with Mouser for the first time?

My biggest piece of advice is to never stop learning. The pace of technological change today is extraordinary — new tools, design platforms, and components are emerging all the time. Engineers must not only master their immediate specializations but also stay informed about software tools, sourcing methods, and industry trends. Product development cycles are getting shorter, so adaptability and continuous learning are key. At Mouser, our goal is to support this journey by providing reliable information, educational content, and access to the latest technologies.



Zero Trust in the 5G and Cloud Era: Redefining Secure Work for Indian Enterprises

The tectonic plates of India's digital landscape are shifting. With the aggressive rollout of 5G connectivity and the pervasive adoption of hybrid and multi-cloud environments, Indian enterprises are unlocking unprecedented levels of speed, scale, and agility. However, this transformative power comes with a significant, non-negotiable caveat: the complete and final collapse of the traditional network perimeter.

For decades, security rested on the flawed premise of implicit trust: everything inside the corporate firewall was deemed safe. Today, as employees connect from anywhere, on any device, accessing cloud-hosted applications via the high-speed, dynamic tunnels of 5G, that 'hard shell, soft centre' model is obsolete. An Indian enterprise's network boundary is no longer a physical wall; it is the identity of the user, the health of their device, and the context of their request.

This is precisely where the Zero Trust Architecture (ZTA) moves from an aspiration to an existential mandate for Indian businesses.

The Triple Threat: Cloud, 5G, and the Evolving Indian Enterprise

The urgency for ZTA in India is driven by three converging factors that fundamentally alter the risk profile:

- **The Borderless Cloud Estate**
  Indian enterprises, from BFSI to manufacturing, are aggressively adopting cloud-native services and hybrid cloud models to accelerate digital transformation. This migration fragments the IT estate, creating a complex, often poorly governed web of connections between on-premises data centres, private clouds, and multiple public cloud providers. Misconfigurations and porous access controls in these environments are now the leading cause of data breaches. ZTA's principle of micro-segmentation ensures that even a breach in one cloud segment cannot lead to lateral movement across the entire infrastructure.
- **The 5G Paradox**
  5G promises ultra-low latency and massive machine-to-machine connectivity, enabling transformative use cases like Smart Factories, remote healthcare, and large-scale IoT deployments. The challenge is that 5G's Service-Based Architecture (SBA) is inherently open and cloud-native, introducing new threat vectors that traditional security was never designed for. The sheer volume of connected devices (IoT/OT) provides an enormous attack surface. Zero Trust ensures that every device and every connection, whether a sensor in a factory or a doctor's tablet, is continuously verified before being granted the least possible access.
- **The Sophisticated Adversary**
  Cybersecurity threats targeting Indian organisations are escalating in sophistication. We are moving beyond simple malware to nation-state-level attacks, Ransomware-as-a-Service (RaaS), and AI-powered phishing campaigns that are difficult to detect. This new breed of threat assumes that credentials will be compromised and that an attacker will gain a foothold inside the network. ZTA's 'never trust, always verify' philosophy is the only realistic defence, drastically limiting the time an attacker has to move laterally and cause damage.

From Perimeter Defence to Context-Aware Access

Zero Trust is not a single product; it is a strategic shift built on three core pillars that must be meticulously implemented to redefine secure work in the 5G and Cloud era:

- **Strong Identity is the New Perimeter**
  In a work-from-anywhere world, the user's identity is the most critical control point. This requires moving past simple passwords to Multi-Factor Authentication (MFA) and Identity and Access Management (IAM) that are risk-aware. Access decisions must be dynamic, changing based on factors like the user's location, time of day, and the security posture of the device. For Indian organisations handling sensitive citizen or customer data, this non-negotiable layer of identity verification is the first line of defence against credential stuffing and impersonation attacks.
- **Least Privilege Access (LPA)**
  An employee or system should only have access to the bare minimum resources necessary to perform their task—no more, no less. This principle applies equally to employees, third-party vendors, and even application-to-application communication across cloud workloads. In the context of a 5G-enabled ecosystem, this means granting a manufacturing floor sensor access only to the data analytics pipeline it needs, not the company's HR system. LPA effectively minimises the 'blast radius' of any potential breach.
- **Continuous Security Monitoring and Validation**
  Trust is never granted permanently. Zero Trust requires continuous monitoring of the user, the device posture, and the environment. If an employee's device suddenly exhibits suspicious behaviour (e.g., trying to access an unrelated server or downloading an unusually large volume of data), their access must be dynamically revoked or restricted in real-time. This continuous validation loop is essential for combating the speed and sophistication of modern, automated attacks.

A Strategic Imperative for India's Digital Future

The Indian economy is on a path to a $1 trillion digital GDP, with cloud and 5G serving as primary accelerators. To secure this growth, Indian enterprises must view Zero Trust not as a complex IT project, but as a core business resilience strategy. The stakes are too high to rely on outdated, castle-and-moat security models.

Leaders in the technology space must guide enterprises toward a unified and comprehensive Zero Trust approach that spans hybrid environments, securing both the traditional enterprise network and the new, hyper-connected 5G and cloud frontiers. This involves consolidating siloed security tools into a cohesive platform that can manage identity, enforce granular access, and provide centralised visibility across the entire digital fabric.

By embracing Zero Trust, Indian enterprises can finally redefine secure work, ensuring that security becomes an enabler of innovation in the 5G and Cloud era, rather than a bottleneck. The time for 'trusting' the perimeter is over; the future belongs to continuous verification.

Vijender Yadav
CEO and Co-founder, Accops

> “5G promises ultra-low latency and massive machine-to-machine connectivity, enabling transformative use cases like Smart Factories, remote healthcare, and large-scale IoT deployments.”

VIAVI CTO Sameh Yamany on 6G, AI, and Quantum-Safe Networks

At the India Mobile Congress (IMC) 2025, BIS Infotech caught up with **Sameh Yamany**, Chief Technology Officer, **VIAVI**, to discuss the company's pioneering role in advancing next-generation network technologies. In an era marked by the convergence of AI, 6G, and quantum-safe communications, VIAVI is driving innovation across critical areas such as network testing, optimization, and automation. From enabling digital twins for network operators to ensuring resilience in Positioning, Navigation and Timing (PNT) systems, and powering AI infrastructure with high-speed optical testing, VIAVI continues to shape the evolution of secure, intelligent, and future-ready networks.

Mr. Manas Nandi (Editor-in-chief) from **BIS Infotech** engaged in an insightful conversation with **Sameh Yamany**, Chief Technology Officer, **VIAVI**, exploring how VIAVI's cutting-edge solutions—from the **6G Forward Program to NITRO AIOps and quantum-safe test platforms**—are redefining the landscape of telecommunications and mission-critical connectivity. The discussion delved into how VIAVI's innovations are enabling communication service providers, enterprises, and defense organizations to prepare for the next technological frontier.

With the increasing complexity of networks, network operators are turning to digital twins. How does VIAVI help?

New architectures, growing network complexity, frequent software updates and managing cybersecurity are just some of the challenges that operators need to manage. By leveraging AI and real-world field data, CSPs can simulate the RAN environment, devices, and scenarios, facilitating effective training, testing, and refinement of their network—RAN to Core—without disrupting live operations.

Applying AI and machine-learning algorithms to RF propagation facilitates better large-scale digital twin network simulations, which will be vital in the shift to 6G networks, and enables them to dynamically adapt to changing environments and conditions. As networks become more complex, digital twins help operators test, optimize, and innovate in a controlled environment without endangering their live network.

VIAVI's TM500 and TeraVM solutions emulate base stations, core networks and real-world traffic. These can be used to simulate, predict and forecast the behavior of its real-world counterpart. VIAVI Digital Twins combine tools such as; RAN and Core emulators, assurance solutions, realistic traffic scenarios, and cyber threats to mirror an operator's network in the lab, allowing network changes and challenges to be planned and implemented and results analyzed before action is taken on the live network.

Tell us more about your 6G Forward initiatives, Positioning, Navigation and Timing (PNT), and AIOps (Artificial Intelligence for IT Operations) moves?

6G Forward:
Accelerating research and development of AI driven solutions for future generations of wireless communication, VIAVI is working on several projects driving 6G and advancing wireless technology with its strides in 6G and AI research, through the 6G Forward Program. The 6G Forward Program is accelerating technology evolution through a combination of proprietary research within the VIAVI Marconi Labs (VML), specializing in wireless technology research, innovation, and testing, and support of academic labs around the globe.

PNT:
Essential networks throughout the world – including 5G/6G telecommunications, AI hyperscale data centers, defense, public safety, transportation, aviation and energy – rely on publicly available GPS and GNSS signals for efficient data synchronization based on timing and location. These vulnerable and single-source signals are occasionally unavailable or at risk of being jammed or spoofed, or satellites themselves can be attacked, with potentially catastrophic consequences. SecurePNT and SecureTime from VIAVI offers the most resilient timing in the industry, with multisource assurance combining signals from GNSS-dependent government and GNSS-independent commercial constellations across Medium Earth Orbit (MEO), Geosynchronous Earth Orbit (GEO) and Low Earth Orbit (LEO), respectively.

AIOps
NITRO AIOps (AI for Network Operations) serves as an umbrella solution that seamlessly integrates across multi-vendor, multi-technology, and multi-domain environments. NITRO AIOps elevates network management, troubleshooting and service assurance through automation, unlocking the full potential of zero-touch operations while enhancing operational efficiency. It enables network digital transformation with real-time analytics and predictive maintenance, identifying issues before they impact users.

In the quantum era, organizations are transitioning to post-quantum encryption. How can they stay ahead of risks and prepare for a quantum safe future?

Quantum computers have the potential to break public-key cryptography once they begin operating at a large scale. Governments, military, enterprises and mobile operators are preparing for a quantum-safe future to protect their vast storage of sensitive data.

There is a growing demand across all industries for a trusted validation platform that is essential for regulatory certifications and cross-domain technology deployment. VIAVI is uniquely positioned to support the quantum transition. Our quantum-safe testing suite offers a comprehensive platform for evaluating functionality, compliance, performance, and resilience of quantum-resistant technologies. Whether integrated into existing infrastructures or deployed in testbeds, VIAVI empower stakeholders to confidently assess and deploy quantum-safe systems.

The VIAVI MAP-300 is a modular, dense, and easily reconfigurable optical test platform with remote and automated capabilities. It effectively explores the limits of quantum in computing, networking, encryption, and cryptography. MAP-300 supports QKD impairment by creating flexible, reconfigurable photonic system that emulates a broad range of power and spectral loading scenarios representative of live production networks. This can be used to validate the performance or applicability of new QKD systems or sub-components.

VIAVI's TeraVM security test is trusted by leading network security infrastructure vendors, service providers, research institutes, governments and enterprises to emulate large-scale user endpoint traffic applications over secure access connections, while measuring individual traffic flow performance across multiple quality vectors. TeraVM security test enables benchmarking of the performance of enterprise devices, content delivery networks and endpoints that initiate or terminate IPSec traffic using PQC. The TeraVM platform is in wide use by network equipment manufacturers, network operators and research institutes

Sameh Yamany
Chief Technology Officer,
VIAVI

> *"As networks become more complex, digital twins help operators test, optimize, and innovate in a controlled environment without endangering their live network."*

for its proven capabilities in testing security compliance as well as performance impacts of security layers.

Land mobile radio (LMR) technologies have significantly improved security, range, and efficiency. Please elaborate on some of the key test systems that VIAVI offers to test mission-critical radio networks?

Land Mobile Radio (LMR) is used to provide essential voice communication for disparate users around the globe. Radio products and standards have continued to evolve, incorporating digital technology while improving the range, reliability, and spectrum utilization. At the same time, LMR test solutions have consolidated advanced capabilities into integrated, compact equipment suitable for all use cases, events, and environments.

VIAVI provides industry-leading radio test equipment to validate all land mobile radio technologies utilized worldwide. The versatile and efficient LMR product line-up also incorporates the industry's largest library of OEM approved automated test and alignment applications, spanning multiple radio families.

VIAVI CX300 is a complete communications test solution capable of testing everything from portable radios, to complex infrastructure, to broadband networks, providing today's radio technicians with an easy-to-use instrument for most ruggedized needs. The CX300 offers an innovative user interface and its Auto-Test applications perform fast, repeatable, and accurate test and alignment matching the specific OEM's maintenance specifications. Radio technicians can easily save and access test results for both manual and automated tests with VIAVI StrataSync which also helps in uploading test results to the cloud or updating the test set with the latest software.

VIAVI CX200 is an advanced communications service monitor for today's technicians, offering a user-friendly interface and a comprehensive feature set to meet a wide range of infrastructure and subscriber maintenance needs. It incorporates the industry-leading suite of VIAVI automated test applications, trusted by radio manufacturers to ensure fast, repeatable and accurate test and alignment. The CX200 delivers the most compact form factor, while enabling critical new functions for on-site infrastructure testing, maintaining and troubleshooting mission-critical radio networks.

Please elaborate on some of the latest solutions for AI infrastructure development, manufacturing and deployment?

Traditional networking infrastructure struggles to keep pace with the performance, speed and capacity requirements of AI/ML applications. To address this challenge, there has been a push towards higher-speed 800G optical transceivers and the emergence of 1.6Tb/s, alongside other enabling technologies throughout the network. VIAVI testing solutions inspect, qualify and ensure the infrastructure required to run AI applications.

Test Solutions for AI Infrastructure Development and Manufacturing

VIAVI enables R&D qualification and volume production of optical network component and connectivity up to 1.6T. With unprecedented demand for AI & ML applications, VIAVI equips its customers with industry-leading photonic and data test platforms including ONE LabPro and MAP-300. This extensive portfolio supports high-capacity testing of infrastructure elements such as Multi-Fiber MPO and VSFF connectivity that are driving 1.6T speeds. VIAVI also offers PCI Express, CXL and NVMe protocol analysis platforms that enable development of network equipment to PCIe 6.0/64GT/s for high-performance computing (HPC) applications.

Test Solutions for AI Infrastructure Deployment

VIAVI's INX 760 and MPOLx tools ensure fast, accurate certification of data center cabling for AI support including VSFF connectors that offer ultra-high-density connectivity with billions of strands. FiberComplete PRO and Test Process Automation (TPA) guarantee fiber installations for high-speed data center interconnects.

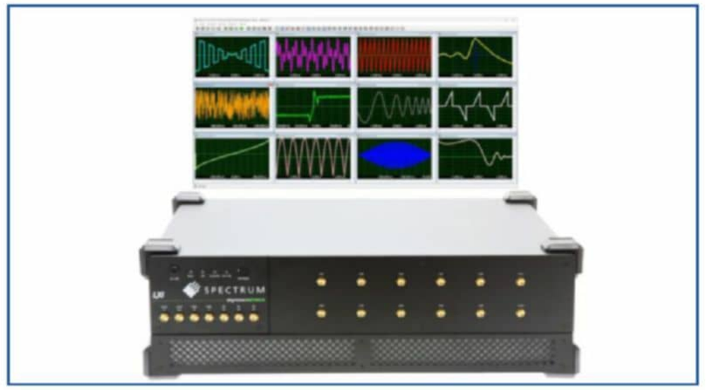
Performance Observability for AI Network Infrastructure

VIAVI NITRO Fusion offers real-time network performance visibility and enables automation for capacity / resources planning. ONMSi provides rapid alerts of fiber degradations, diagnostic of fiber network failures, and identifies patterns to anticipate anomalies. NITRO Fiber Sensing protects data center interconnects (DCI) and infrastructure by detecting physical threats, whether they stem from accidental damage or deliberate attacks.

In addition, VIAVI's AI-powered Digital Twin technology enables new predictive capabilities that help fortify networks. By creating a virtual model of a network in the lab, service providers can more quickly and effectively manage network behaviours and disruptions. These digital twins play a pivotal role in advancing network design, reliability and performance. They are an invaluable tool for identifying network issues before they arise as they enable timely troubleshooting of operational challenges once the network is deployed and operational.

Networking
Business
Finance
Network
Media
News

Spectrum Unveils DN6.33x Multi-Channel GHz Digitizers



Spectrum Instrumentation has launched the DN6.33x series, a new line of high-speed, multi-channel digitizers featuring up to 12 synchronized channels and sampling rates up to 10 GS/s. Designed for applications in aerospace, communications, and research, each unit uses a 12-bit ADC with up to 8.8 ENOB and offers configurable input ranges, bandwidths up to 3 GHz, and onboard memory from 4 to 48 GiSamples. The system supports multiple acquisition modes, low-jitter clocks, and advanced synchronization for precise data capture. Available now, DN6.33x models come with SBench 6 Professional software and SDKs for Python, MATLAB, and LabVIEW integration.

Teradyne Launches ETS-800 D20 Automated Power Semiconductor Tester

TERADYNE
ETS-800

Teradyne has introduced the ETS-800 D20, an advanced addition to its ETS-800 platform, tailored for high-performance, scalable testing of power semiconductor devices in EVs, AI, and cloud infrastructure. The D20 features a dual-sector test head, support for up to eight parallel test sites, and high channel density, enabling faster throughput and precise measurements. Designed for both high-volume and high-mix/low-volume testing, it offers ultra-low resistance measurement and broad compatibility with existing ETS-800 instruments. Ideal for EV systems, AI data centers, and power management ICs, the D20 helps manufacturers improve efficiency, lower costs, and accelerate product development for next-generation applications.

VIAVI Enhances ONE LabPro for 1.6Tb Testing

VIAVI Solutions has expanded its ONE LabPro® testing platform with the new ONE-1600ER module, enhancing support for next-generation 1.6Tb optical components. The module offers full Ethernet testing based on the 802.3dj standard, including 8x200G and 224G SERDES analysis. It supports OSFP 1600G modules, advanced power management, and features like inter-sublayer link training and symbol muxing. Alongside, VIAVI enhanced its MAP-300 platform with tools such as a high-density variable attenuator, polarization-maintaining fiber switches, and updated FiberChek ULTRA inspection tools. These solutions meet the demands of AI-driven infrastructure and will be showcased at ECOC 2025 and in partnership demos with Alphawave Semi.

Yokogawa and Toyota Partner on Lunar Rover Control Platform

Yokogawa Electric and Toyota Motor Corporation have partnered to develop prototype control and measurement systems for JAXA's manned lunar rover, the "Lunar Cruiser." Aimed at supporting extended lunar missions, the rover will offer both manned and remote operation. Yokogawa will design key onboard systems, focusing on control platforms and battery measurement. This collaboration builds on earlier joint studies and marks a shift into engineering and prototyping. The Lunar Cruiser is expected to launch around 2031. Yokogawa sees the project as strategic to its "Growth for Sustainability 2028" plan, advancing its space capabilities and benefiting future terrestrial technology applications.

ABB India Launches Rare-Earth-Free IE5 Industrial Motors

ABB India has launched a new range of rare-earth-free IE5 ultra-premium efficiency motors, offering 45 kW to 1000 kW power with up to 40% lower energy losses than IE3 motors. These motors, compatible with Direct-On-Line and Variable Frequency Drive operations, cater to industries like metals, cement, textiles, and pharmaceuticals. ABB is also investing ₹140 crore to modernize its low-voltage motor manufacturing facility in India, boosting sustainable industrial solutions. By eliminating rare-earth materials, ABB addresses supply chain issues while supporting green manufacturing. This move reinforces India's position as a global hub for energy-efficient motor technology.

Acronis and Frux Partner to Boost Cybersecurity Distribution in India

Acronis has appointed Frux Technologies Pvt. Ltd. as its Cloud Aggregator and Value-Added Distributor in India to expand its cyber protection solutions across enterprises, SMBs, and MSPs. This partnership aims to deliver scalable, secure cloud backup, disaster recovery, endpoint protection, and AI-driven threat detection tailored for India's growing digital market. Frux will leverage its channel network to drive partner enablement, technical support, and cloud adoption. With rising cyber threats in India, this collaboration strengthens businesses' resilience and accelerates digital transformation by providing integrated, reliable cybersecurity solutions to safeguard critical data and operations.

Airbound Secures $8.65M to Expand Drone Operations

Airbound, an Indian drone logistics startup, raised $8.65 million in seed funding led by Lachy Groom and backed by investors from Tesla, SpaceX, and Anduril. The funds will scale manufacturing, enhance product development, and expand drone deliveries across India. Airbound's advanced drones use lightweight carbon fiber and VTOL technology, achieving a high payload-to-weight ratio and aiming to reduce delivery costs to ₹1. The company is piloting medical deliveries with Narayana Health in Bengaluru, proving its technology's reliability. Airbound plans to grow its team, secure regulatory approvals, and expand partnerships in logistics, healthcare, and e-commerce.

Avantel Launches ₹56-Crore Defence Tech Facility in Hyderabad

Avantel Limited has inaugurated its second advanced facility in Hyderabad, investing over ₹56 crore to boost India's indigenous defence and space capabilities. Spanning 76,000 sq. ft., the facility supports the design, development, and manufacturing of Software-Defined Radios, radar systems, and satellite AIT, along with Ground Station as a Service (GSaaS). Aligned with the 'Atmanirbhar Bharat' vision, it will create over 300 direct and 1,000 indirect jobs. Director Siddhartha Abburi emphasized its role in strengthening indigenous innovation. With enhanced R&D capabilities, Avantel aims to advance secure communications and strategic technologies for defence, aerospace, and satellite sectors, reinforcing India's self-reliant tech ecosystem.

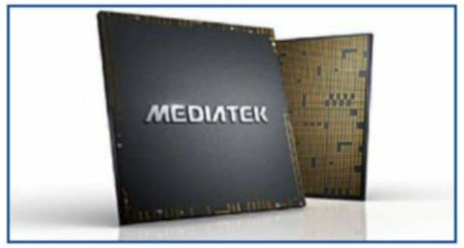
Foxconn Signs Deal with L&T Semiconductor for Wafers

L&T Semiconductor Technologies (LTSCT) has entered a long-term partnership with Hon Young Semiconductor (HYS), a Foxconn subsidiary, to co-develop and manufacture high-voltage semiconductor wafers (650V to 3,300V) for automotive, EV, and industrial power applications. Combining HYS's advanced wafer fabrication in Taiwan with LTSCT's integration expertise, the collaboration aims to meet India's growing demand for efficient power components critical to electrification and sustainable energy. This alliance strengthens India's semiconductor supply chain, accelerates innovation, and supports the nation's push for technological self-reliance in electric mobility and renewable energy sectors.

Ericsson Expands India Operations to Produce All Telecom Gear

In a major boost to India's telecom self-reliance, Ericsson has pledged to manufacture all its telecom equipment, including future 6G infrastructure, within India. Announced at India Mobile Congress 2025, this move supports the Make in India initiative and strengthens local R&D, particularly through its Bengaluru-based ASIC center. Ericsson also collaborates with VVDN Technologies to produce key components like passive antennas. 6G trials are set to begin by 2028. Additionally, Ericsson is leveraging 5G for social impact, powering smart "Grain ATM" kiosks across multiple cities. This initiative positions India as a global hub for telecom innovation, manufacturing, and digital connectivity.

MediaTek Shows Willingness to Manufacture Chips in India



In a major boost to India's semiconductor ambitions, Taiwanese chipmaker MediaTek has expressed interest in manufacturing locally, contingent on the development of a viable fabrication ecosystem. Anku Jain, Managing Director of MediaTek India, stated the company is open to local production if infrastructure and supply chains mature. Currently reliant on overseas foundries like TSMC, MediaTek supports India's $10 billion Semicon India Programme and sees strategic value in manufacturing close to demand centers. With a strong R&D presence and dominant market share in smartphone chipsets, MediaTek aims to reduce import costs and support India's vision of becoming a global semiconductor hub.

Morphing Machines Raises $4.3M to Advance Chip Innovation

Bengaluru-based fabless semiconductor startup Morphing Machines has raised ₹38.36 crore (~$4.3 million) in a Series A round led by IAN Alpha Fund, with participation from Speciale Invest, IvyCap Ventures, Navam Capital, and others. The funds will accelerate development and commercialization of its reconfigurable chip architecture, REDEFINE, designed for dynamic, high-performance computing across AI, data centers, telecom, and automotive sectors. Unlike traditional chips, REDEFINE adapts in real time to varied workloads. The funding will support chip prototyping, team expansion, and global pilot deployments. This milestone reinforces India's growing semiconductor capabilities under the Make in India and Digital India initiatives.

NaMo Semiconductor Lab Approved at IIT Bhubaneswar

NAMO
SEMICONDUCTOR
LABORATORY

In a significant step toward strengthening India's semiconductor ecosystem, Union Minister Ashwini Vaishnaw has approved the establishment of the NaMo Semiconductor Laboratory at IIT Bhubaneswar. Funded under the MPLAD Scheme with a budget of ₹4.95 crore, the lab will focus on chip design, manufacturing, and packaging. It aims to train skilled professionals and support R&D, advancing India's 'Make in India' and 'Design in India' goals. Odisha's growing role in semiconductor development, including recent SiC and 3D packaging projects, positions IIT Bhubaneswar as a key national hub. This lab will further reinforce India's ambition to become a global semiconductor powerhouse.

Paras Wins ₹46 Crore Anti-Drone Defence Contract

Paras Anti-Drone Technologies Pvt Ltd, a subsidiary of Paras Defence and Space Technologies, has secured a ₹46.19 crore contract from India's Ministry of Defence for the supply of advanced anti-drone systems, including jammers. Scheduled for completion by March 2026, the deal supports the Aatmanirbhar Bharat initiative by promoting indigenous defence manufacturing. The systems will detect, track, and neutralise rogue drones in real time. CEO Ashutosh Baheti called the order a testament to the company's capabilities. This contract strengthens India's counter-UAV infrastructure amid rising drone threats and positions Paras as a key player in domestic defence and airspace security solutions.

Sahasra Semiconductors Expands Portfolio

Sahasra
Electronics Pvt. Ltd

Sahasra Semiconductors, a leading Indian ESDM company, has expanded its product range to include Micro SD cards and started exporting these Made-in-India products to Europe through a partnership with German brand Hama GmbH. The collaboration enables Sahasra to supply high-quality Micro SD cards and USB drives to European markets, serving consumer electronics like feature phones and surveillance cameras. With manufacturing units in Noida and Bhiwadi, Sahasra is the first Indian firm to export packaged memory devices from its semiconductor unit. This milestone highlights India's growing electronics manufacturing capabilities, supported by government initiatives promoting the country's global semiconductor presence.

Servotech Wins 2.58MW Solar Rooftop Railway Project

SERVOTEC
Ranchi Division

Servotech Renewable Power System Ltd. has secured a 2.58 MW rooftop solar project with South Eastern Railway's Ranchi Division, strengthening its partnership with Indian Railways. The project involves the complete design, manufacture, supply, installation, and commissioning of solar PV panels across multiple sites. This initiative supports Indian Railways' net-zero carbon goals by integrating clean energy solutions into its operations. Sarika Bhatia, Director at Servotech, highlighted the company's commitment to helping Indian Railways exceed sustainability targets. The project reinforces Servotech's leadership in large-scale solar solutions and contributes to India's renewable energy and climate objectives.

CDAC and ICAT Collaborate to Drive Swadeshi Automotive Innovation

C-DAC and ICAT have signed an MoU to jointly develop, test, and certify indigenous automotive technologies, reinforcing India's push for self-reliance under Atmanirbhar Bharat and Make in India. Announced at the Traffic InfraTech Expo 2025, the partnership focuses on R&D in next-gen mobility, cybersecurity for smart vehicles, and the creation of Indian-specific standards. While ICAT will work with manufacturers for testing and certification, C-DAC will lead tech development. This alliance aims to reduce import dependency by fostering Swadeshi innovations for electric, autonomous, and connected vehicles, aligning with national initiatives like Digital India and FAME to build a future-ready automotive ecosystem.

India, South Korea Deepen Strategic Electronics Sector Collaboration

India and South Korea have agreed to strengthen collaboration in electronics manufacturing, EV components, and digital supply chain development following a meeting between Minister Jitin Prasada and his South Korean counterpart at the G20 Trade Ministers' forum. The partnership aims to promote joint ventures, facilitate technology transfer, and enhance digital infrastructure cooperation. Aligned with India's "Make in India" and Korea's tech strengths, the initiative targets resilient supply chains, increased investment, and sustainable manufacturing. Both nations will establish working groups and conduct feasibility studies to drive implementation, with a shared focus on innovation, market access, and reducing reliance on single-source suppliers.

India's ECMS Set to Boost Electronics Manufacturing Strongly

India's Electronics Component Manufacturing Scheme (ECMS) has attracted investment proposals exceeding ₹1.15 trillion—nearly double the initial target of ₹59,000 crore—marking a major milestone in strengthening local electronics manufacturing. With 249 proposals submitted, the scheme aims to boost domestic value addition from 15–20% to 35–40% within five years. Key focus areas include enclosures, PCBs, camera modules, and lithium-ion cells. Major players like Tata Electronics are participating, with global interest growing. ECMS is expected to generate 1.4 lakh direct jobs and reduce import dependency, supporting India's Make in India and Atmanirbhar Bharat goals while positioning the country as a global electronics hub.

India's Electronics Component Scheme Attracts ₹1.15 Lakh Crore Investment

India's Electronics Components Manufacturing Scheme (ECMS) has received a massive ₹1.15 trillion in investment commitments, nearly doubling its initial target of ₹59,350 crore. With 249 applications from domestic and global players, the scheme aims to boost indigenous electronics manufacturing, reduce imports, and create over 1.4 lakh direct jobs—surpassing the original target of 91,600. Projected production value stands at ₹10.34 lakh crore, over twice the initial estimate. Launched in May 2025 with a ₹22,919 crore outlay, ECMS aligns with Make in India and Atmanirbhar Bharat initiatives, positioning India as a global electronics manufacturing hub.

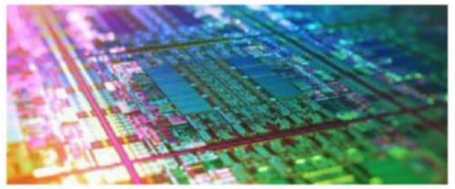
L&T Semiconductor Partners with CP PLUS for Surveillance Innovation

L&T Semiconductor Technologies Ltd. (LTSCT) has partnered with CP PLUS to manufacture over 9 million advanced IP CCTV cameras in the next three years, powered by India-designed Vision System-on-Chip (SoC) technology. These energy-efficient SoCs offer 8MP high-resolution imaging with robust cryptographic security, supporting India's Atmanirbhar Bharat initiative. The collaboration strengthens India's semiconductor ecosystem and security infrastructure by reducing reliance on imports and boosting AI-driven surveillance innovation. It also aligns with government goals to enhance domestic manufacturing, cybersecurity, and employment, marking a key milestone in India's journey toward global leadership in secure, AI-enabled surveillance solutions.

LG and Samsung Leverage Indian Engineers to Drive Chip Development

LG and Samsung are significantly expanding their semiconductor design centers in Bangalore, investing heavily in India's engineering talent to develop next-generation chips for AI, automotive, and IoT applications. This marks India's shift from a cost-effective hub to a strategic innovation center, supported by over 150,000 skilled chip designers. The move aligns with India's Semiconductor Mission and Atmanirbhar Bharat vision, boosting local R&D, job creation, and supply chain resilience. Increasing venture capital and government incentives further strengthen this trend, highlighting growing confidence in India's semiconductor ecosystem and its role in the global tech landscape.

Siemens and TSMC Partner to Advance 3D IC



Siemens Digital Industries Software has deepened its partnership with TSMC to accelerate AI and 3D IC design innovation. Announced at the 2025 TSMC OIP Forum, the collaboration certifies Siemens' EDA tools—such as Calibre™ nmPlatform and Solido™ Simulation Suite—for TSMC's advanced nodes including N3C, N2P, and A16. Siemens' solutions, including Calibre 3DSTACK™ and Calibre 3DThermal™, now support TSMC's 3DFabric™ for thermal-aware 3D IC design. The partnership also enables cloud-based workflows via AWS. Together, Siemens and TSMC aim to streamline design, reduce time-to-market, and support the growing demand for AI, HPC, and automotive chips through cutting-edge, variation-aware, and thermally optimized EDA integration.

Infineon Introduces PQC-Ready Contactless Dual-Interface Controller

As quantum computing progresses, Infineon Technologies AG has launched the SLC27 security controller—the first in its TEGRION™ family to feature a Common Criteria-certified library supporting post-quantum cryptographic algorithms ML-KEM and ML-DSA. Built on Infineon's Integrity Guard 32 architecture, the SLC27 is designed to secure long-life devices like IoT systems, ePassports, and Secure Elements against future quantum threats. It supports crypto agility with dual-interface capabilities and in-field updates. Offering strong resistance to side-channel and fault attacks, the SLC27 enables scalable, future-proof protection. Infineon's innovation helps industries prepare today for tomorrow's post-quantum security demands with certified, easy-to-implement solutions.

Keysight Completes Spirent Acquisition to Expand Testing Capabilities

spirent™
Is Now Part of Keysight

Keysight Technologies has completed its $1.46 billion acquisition of UK-based Spirent Communications, significantly expanding its test and assurance capabilities across telecommunications, aerospace, automotive, and industrial automation sectors. This acquisition enhances Keysight's portfolio with Spirent's expertise in software test automation, network assurance, and GNSS, supporting advancements in 5G, 6G, SD-WAN, cloud, and autonomous systems. The deal, valued at £1.16 billion, includes Spirent's delisting from the London Stock Exchange and regulatory approvals from multiple global authorities. Keysight will divest certain Spirent business lines, with completion expected by October 16, 2025, strengthening its position in next-generation test solutions.

Netherlands Restricts Chinese Control of Nexperia Operations

In response to rising geopolitical concerns over critical technology, the Dutch government has imposed restrictions on Chinese-owned semiconductor firm Nexperia to protect national and European economic security. Using the rarely-invoked 'Availability of Goods Act,' authorities curtailed foreign influence by suspending Wingtech's CEO from Nexperia's board and appointing Dutch oversight. Most shares were temporarily placed under local control to prevent sensitive technology from being transferred to China. This move reflects broader Western efforts to curb Chinese access to strategic tech assets. Nexperia, a major supplier for automotive and AI industries, remains operational amid increased scrutiny and Wingtech's vocal opposition.

Qualcomm to Acquire Arduino, Boosting Edge AI Innovation

Qualcomm Technologies Inc. has announced plans to acquire Arduino, the open-source electronics leader, to accelerate innovation in embedded AI and edge computing. The acquisition, pending regulatory approval, aims to enhance Qualcomm's developer ecosystem by tapping into Arduino's 33 million-strong global community. As part of the partnership, the companies unveiled the Arduino UNO Q, a dual-architecture board powered by Qualcomm's Dragonwing QRB2210 processor. This board supports Linux and real-time processing, ideal for AI, robotics, and automation. Arduino will retain its brand and open-source mission. The move strengthens Qualcomm's edge AI strategy and positions it for growth in the expanding AIoT market.

Quintauris and Andes Partner to Scale RISC-V Ecosystem

NEW PARTNERSHIP
QUINTAURIS
×
ANDES

Quintauris and Andes Technology have announced a strategic partnership to accelerate the adoption and industrialization of RISC-V-based technologies. The collaboration will integrate Andes' ISO 26262 certified 32-bit AndesCore processors into Quintauris' automotive real-time reference architecture, enhancing safety-critical applications. The alliance is set to expand across Andes' full processor portfolio, enabling scalable solutions for sectors like automotive, industrial automation, and edge computing. Both companies emphasize the importance of ecosystem alignment and functional safety in driving innovation. This partnership marks a pivotal step in building a cohesive RISC-V ecosystem, lowering adoption barriers, and supporting the growth of open-source computing across global markets.

Delta Electronics: Driving Smart Automation for a Smarter India

At Electronica India 2025, Delta Electronics showcased its wide-ranging innovations shaping the future of industrial automation in India. On the second day of the event, **Dr. Sanjeev Srivastava**, Head of the Industrial Automation Division at **Delta Electronics**, joined BISinfotech for an insightful conversation about Delta's journey, evolving automation landscape, and how technologies like AI, digital twins, and human–machine collaboration are redefining the modern factory floor.

At Electronica India 2025, **Mr. Manas Nandi** (Editor-in-Chief, **BIS Infotech**) engaged in an insightful conversation with **Dr. Sanjeev Srivastava**, Head – Industrial Automation Division, **Delta Electronics India**, delving into Delta's leadership in driving India's smart automation revolution. The discussion explored how Delta's innovations—spanning AI-driven automation, digital twin technology, and human–machine collaboration—are transforming factory ecosystems, enhancing operational intelligence, and accelerating India's journey toward a connected, efficient, and future-ready industrial landscape.

Delta has been a major player in India's automation sector. Could you share a bit about your journey and how your focus has evolved?

Certainly. We began our industrial automation operations in India back in 2002, so it's been over 23 years now. Initially, our focus was primarily on hardware solutions. But as the industry evolved, we transitioned toward a more integrated approach, offering complete hardware, software, and system solutions.

Today, we deliver value at both the operational technology (OT) and information technology (IT) levels—helping manufacturers move toward smart, connected systems. Over the last five years, we've also integrated artificial intelligence and data analytics into our solutions. Our PLCs, HMIs, and sensors collect real-time data from production lines, which is then analyzed through our dedicated software platforms to deliver actionable insights for efficiency and quality improvement.

Could you share some examples of how Delta's automation solutions are empowering different industries?

Delta works across a wide spectrum of industries—machine tools, packaging, metals and mining, cement, electronics manufacturing, and semiconductors, to name a few. We've also built strong capabilities in the automotive sector, where we provide industrial robots and complete press automation systems to leading manufacturers.

In addition, we're seeing great traction in the HVAC segment, where our automation and control solutions are helping improve efficiency and energy management. As India's industrial growth accelerates, we see enormous opportunities across all these areas.

Digital transformation has become a key theme across industries. How is Delta integrating innovation into its offerings?

One of our latest innovations is the implementation of digital twin technology. Traditionally, manufacturers had to set up entire production lines physically before testing performance. Today, with digital twins, we can create a virtual replica of the factory or production line, simulate operations, and make optimizations before physical deployment.

This virtual approach helps identify bottlenecks, estimate production capacity—like jobs per hour—and optimize layouts. Once the digital model is perfected, it can be replicated on the actual shop floor. This not only saves significant time and cost but also minimizes rework. And yes, this technology is applicable across industries—from automotive and renewable energy to storage systems and electronics manufacturing.

Many still fear that automation could replace human jobs. How do you view this concern?

That's a common misconception. The automation that Delta promotes is not about replacing people—it's about empowering them. Our philosophy is centered on collaboration between humans and machines. Automation helps remove repetitive, error-prone tasks, allowing humans to focus on creative and analytical work.

It's about creating smarter factories, not jobless ones. With the right approach, automation can actually lead to greater productivity and better-quality employment.

**Dr. Sanjeev Srivastava,
Head – Industrial Automation Division, Delta Electronics India**

> *"Delta stands at the forefront of India's industrial transformation—where automation isn't just about machines, but about creating smarter, more resilient enterprises for the future."*

You've been in this field for a long time. How do you and your team stay up to date with rapidly evolving technologies?

Learning never stops in our industry. Personally, and as an organization, we stay engaged with customers, institutions, and global partners. We regularly collaborate with academic institutions like the IITs to understand emerging research and align it with industry needs.

We also stay connected with technology transfers from international teams and adapt best practices from across the world. The key is to keep an open mind—observe what's happening globally, understand what fits the Indian context, and continuously evolve.

Finally, what would you like to tell your customers and the Indian manufacturing community?

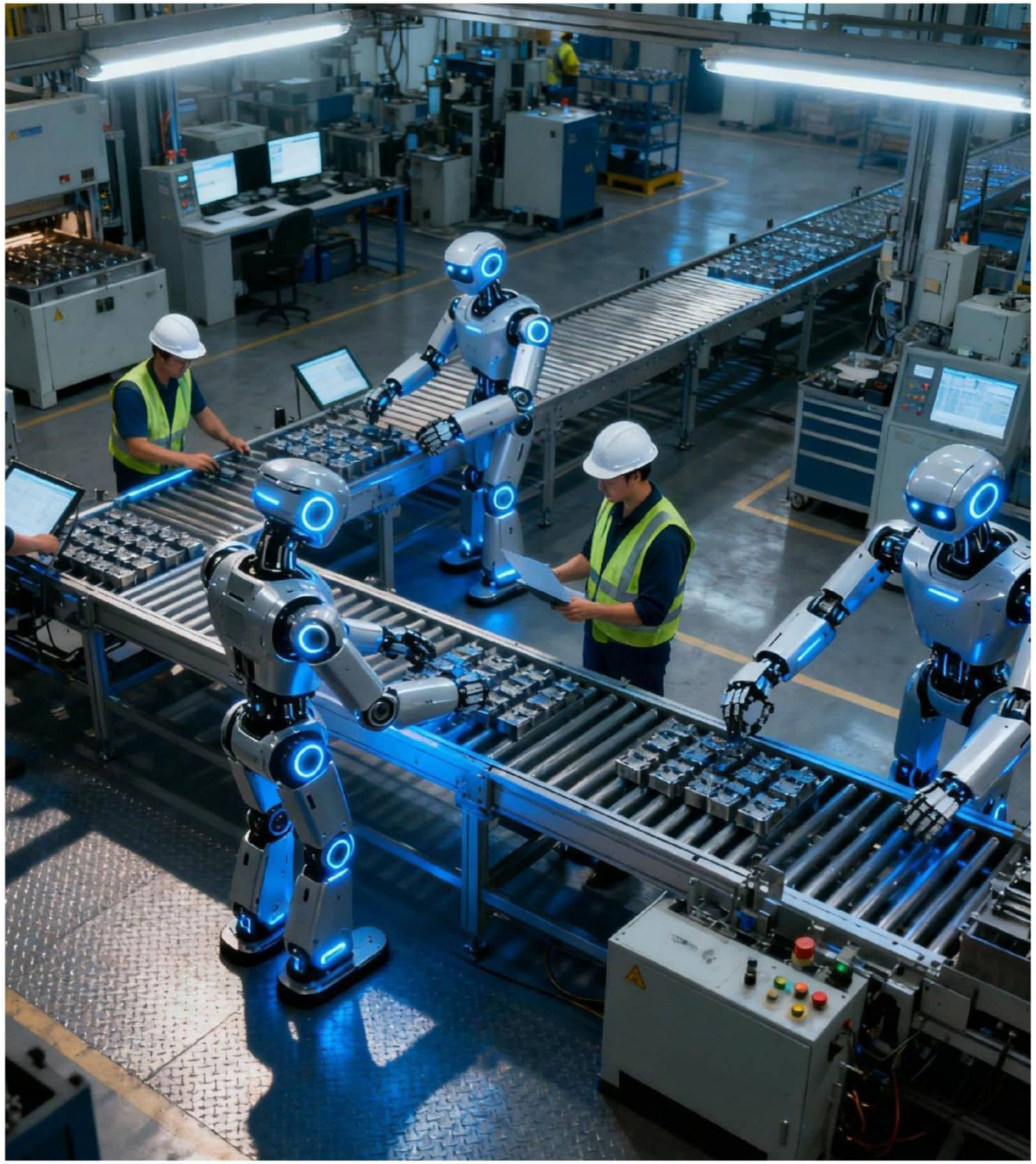
I would say—embrace automation fearlessly. Don't view it as a threat, but as a partner in growth. The future of manufacturing lies in smart collaboration between humans and machines. With technologies like AI, IoT, and digital twins, we're not just optimizing factories—we're shaping the future of intelligent industry.

Conclusion

As Delta Electronics continues to empower industries with its advanced automation solutions, the company's focus remains clear—to bridge the gap between technology and human ingenuity. From smart factories to sustainable energy systems, Delta's innovations are accelerating India's journey toward a digitally connected, efficient, and future-ready industrial ecosystem.

With leaders like Dr. Sanjeev Srivastava steering the vision, Delta stands at the forefront of India's industrial transformation—where automation isn't just about machines, but about creating smarter, more resilient enterprises for the future.

Industrial AI without the hype: what real-world use cases look like today



**Mr. Krishna Bhatt,
Founder and CEO
at Webuters Technologies**

In industrial automation settings, industrial AI is now a viable reality for manufacturers, surpassing marketing promises to produce highly targeted, quantifiable outcomes. Using AI to improve workflows, lower errors, and unlock new value—not to replace trained personnel, but to empower them with smarter systems and real-time decision support—leading firms are implementing AI in everything from visual inspections to predictive maintenance and digital twin deployments. In order to promote wider adoption, this article examines the current state of industrial AI's promise as well as the obstacles that need to be removed.

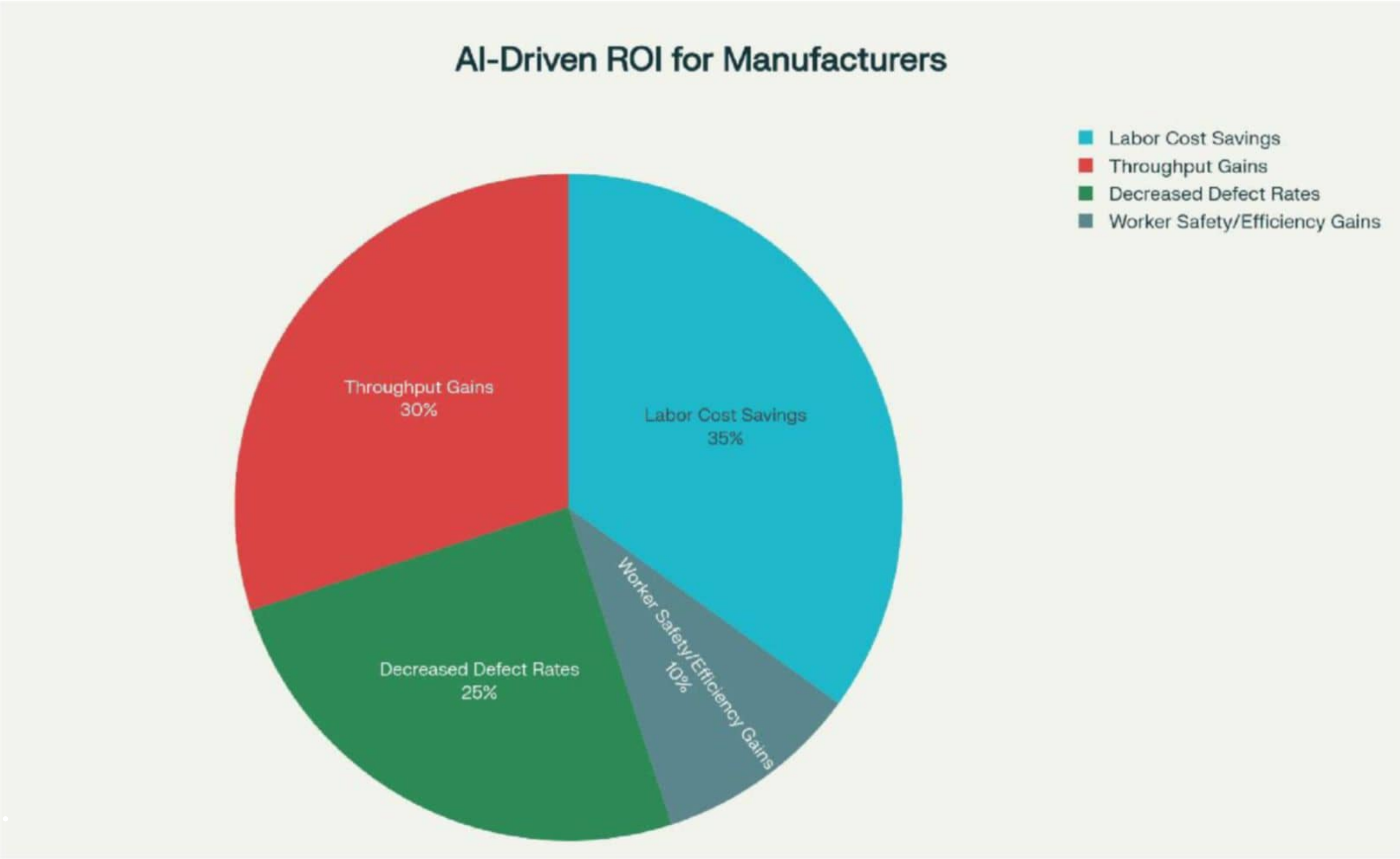
The Reality of Industrial AI

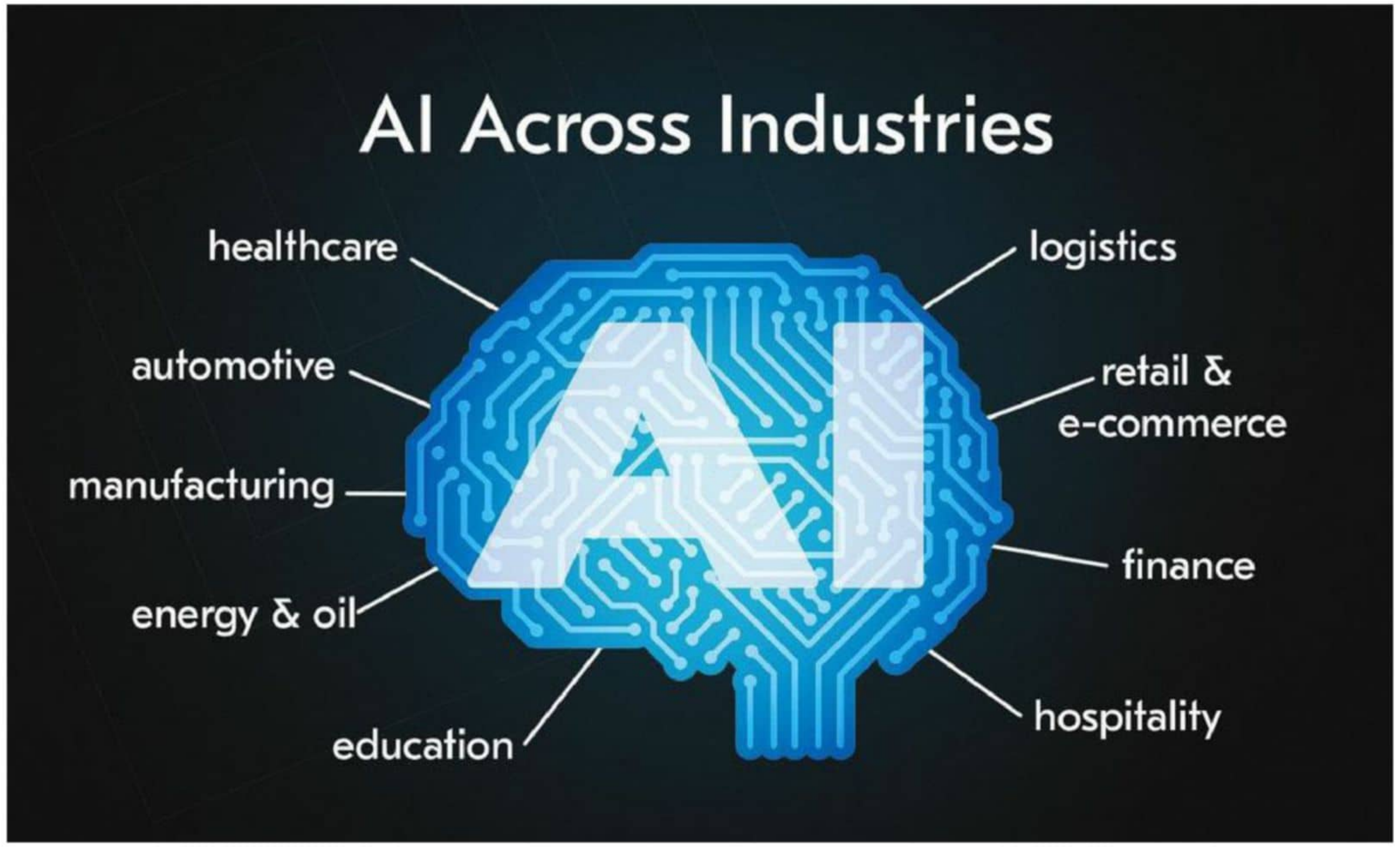
Industrial AI is useful when processes require precision, speed, and predictive analytics. To cut down on unplanned downtime, factories use AI-enabled predictive maintenance, which analyzes vibration, temperature, and sound sensor data. For example, PepsiCo's Frito-Lay factories used AI-powered predictive maintenance, which led to 4,000 additional output hours as fewer pieces of equipment failed. Machine learning-powered visual inspection systems detect issues on the production line in real time, helping companies maintain consistent quality with less waste.

By tracking stock levels, analyzing usage patterns, and predicting replenishment needs using RFID and Internet of Things sensors, AI-driven inventory tracking enhances warehouse operations by reducing shortages and optimizing available space. Artificial intelligence (AI)-powered real-time production monitoring on the shop floor gives managers prompt notifications for problems like robotic arms that are slowing down or unforeseen cycle delays, allowing for prompt remedial action and efficient throughput.

Collaboration, ROI, and Incremental Change

The best industrial AI initiatives are gradual rather than comprehensive, tackling particular problems for quantifiable results. Collaborative robots, or cobots, are AI-powered systems that operate alongside human operators to perform dangerous or repetitive jobs while humans handle exceptions and make intricate judgments. Businesses may retain experienced employees while improving their positions thanks to this "hybrid intelligence" strategy, which also boosts productivity and safety.





ROI is still the key focus; executive buy-in is fueled by hard financial measures like labor cost savings, throughput gains, and decreased defect rates. For example, after implementing AI robotics and automation in warehouses, some manufacturers report up to 45% faster operating cycles and 25% cheaper fulfillment costs. Soft ROI is also becoming more and more recognized as an indicator of long-term organizational health, ranging from increased worker happiness to safer workplaces and enhanced teamwork.

Barriers Industrial AI Still Faces

Despite its obvious benefits, industry scaling AI is fraught with challenges. Poor data quality is the main problem; many industries still use manual logs, outdated machinery, and dispersed spreadsheets, which restrict access to data. Innovative solutions, like sensor retrofits or data translation modules that connect outdated equipment to contemporary analytics, are necessary to integrate AI with aging infrastructure.

Another significant obstacle is employee opposition. Adoption is slowed by worries about losing their jobs or being confused by high-tech systems, but businesses that involve their staff early on—highlighting areas for process improvement and demonstrating how AI can help with repetitive tasks—see increased employee support and quicker pilot success.

Privacy, security concerns, and fears of AI errors or bias also impact rollout decisions. Treating AI as a trusted assistant rather than an "oracle"—and ensuring humans retain oversight—helps maintain safety, accuracy, and trust as companies scale up their initiatives.

The Road Ahead: Practical, People-First Industrial AI

Industrial AI is proven and pragmatic, yielding tangible ROI when applied to targeted automation challenges. The future lies in iterative deployments, embracing hybrid collaboration between skilled workers and intelligent machines, and addressing barriers with data strategy, transparent integration, and inclusive workforce engagement. While hype wanes, the hard work of real-world adoption continues—driven by a steady march toward higher efficiency, quality, and sustainable growth.

> *“Innovative solutions, like sensor retrofits or data translation modules that connect outdated equipment to contemporary analytics, are necessary to integrate AI with aging infrastructure.”*

Harwin's Vision for India: Engineering Reliability and Innovation for the Future

At Electronica India 2025, the buzz around innovation, design, and engineering excellence was unmistakable — and Harwin, a global leader in high-reliability interconnect solutions, stood right at the center of it. In an exclusive conversation, Andrew McQuilken (CEO) and William Harwin (Executive Chair) share insights on India's growing importance in Harwin's global strategy, their upcoming product innovations, and their commitment to empowering engineers worldwide.

Mr. Manas Nandi (Editor-in-Chief, **BIS Infotech**) sat down with **Andrew McQuilken**, Chief Executive Officer, and **William Harwin**, Executive Chair of **Harwin**, for an engaging discussion on the company's engineering-driven vision and expanding global footprint. The conversation explored how Harwin's innovations—from high-reliability interconnects for harsh environments to advanced digital design tools and upcoming space-grade products—are empowering engineers, strengthening supply chains, and shaping the future of mission-critical connectivity worldwide.

Welcome to Electronica India 2025. How has your experience been so far, and what are your impressions of India's technology landscape?

We've been traveling across India this week, meeting some of our top customers. It's been fascinating to witness the technological progress since our last visit two or three years ago. The trade show has also been remarkable—the layout, design, and innovation on display truly reflect the strength and maturity of the Indian market.

This is my first visit to India, and I've been absolutely energized by it. The enthusiasm from engineers here is inspiring—there's a real sense of drive and creativity. The entire event has been buzzing with innovation, and it's been a privilege to be a part of it.

Harwin has always been known for its close collaboration with customers. How do you balance customer engagement with continuous product innovation?

Customers today are pushing boundaries—they want more power, more data, and yet smaller, lighter, and more reliable products. We're constantly evolving our engineering capabilities to meet those demands. Our connectors are designed to perform flawlessly even in the harshest environments.

Listening is key. Every customer conversation gives us valuable insights into how we can make our products more efficient and easier to integrate. Those real-world interactions directly shape our product development roadmap.

Can you share a bit about the upcoming technologies or products Harwin is developing for demanding applications?

We're particularly excited about a new product line designed for space applications, which also extends to industrial use cases. It's being developed in collaboration with a leading space specialist and will officially launch in Q1 next year. Early feedback from select customers has been very encouraging. William: We always urge engineers to engage directly with us—request samples, explore our designs, and test our connectors in their applications. Hands-on experience often leads to the best innovations.

In today's design ecosystem, digital tools play a huge role. How is Harwin enhancing support for engineers online?

Absolutely, digital enablement is crucial. Last year, we introduced a cable configurator that lets engineers design custom harnesses and instantly receive detailed drawings. We also provide 3D CAD models, test reports, and product specifications on our website, giving engineers self-service access to everything they need.

We're continuously expanding these digital capabilities. And we welcome feedback—if engineers have suggestions for improvement, we want to hear them. Collaboration drives better design tools for everyone.

William Harwin
Executive Chair of Harwin

Harwin's reputation for reliability is well-known. How do you maintain such high quality across your portfolio?

All our connectors go through rigorous, military-grade testing, and we also offer customized testing for customers with specific requirements. We've heavily invested in our UK-based test laboratory, consolidating operations into a new state-of-the-art facility in Portsmouth. Reliability is not just part of our process—it's the foundation of our brand.

Testing isn't just about passing standards—it's about understanding performance deeply. When something doesn't work as expected, we learn from it to ensure it never happens again. Having in-house expertise gives us that edge.

> *"Testing isn't just about passing standards—it's about understanding performance deeply. When something doesn't work as expected, we learn from it to ensure it never happens again. Having in-house expertise gives us that edge."*

Andrew McQuilken
Chief Executive Officer,
Harwin

> “All our connectors go through rigorous, military-grade testing, and we also offer customized testing for customers with specific requirements.”

Global disruptions have tested supply chains worldwide. How does Harwin ensure continuity and reliability for its customers?

Our global distribution network plays a key role. Distributors hold inventory worldwide, ensuring that customers can get products when and where they need them. Plus, our website provides real-time stock visibility, simplifying procurement for engineers and purchasing teams.

We've always prioritized resilience. Being a privately owned company allowed us to act quickly—during disruptions like COVID and Brexit, we invested in six months' worth of raw materials to ensure uninterrupted production. Our goal has always been simple: keep customers running.

Looking ahead, which regions or sectors do you expect will drive Harwin's growth in the next few years?

India stands out as a key growth market. With 1.4 billion people and an incredible engineering talent base, it offers huge potential. By 2027, we plan to establish a facility here to serve the Indian market more closely. At the same time, we continue investing in China and other global markets to strengthen our presence.

What's remarkable about India is how its companies are becoming global leaders in aerospace, commercial space, and automotive industries. The innovation happening here is truly world-class, and we're excited to be part of that journey.

Both of you have deep engineering roots. What message would you like to share with young engineers entering the field today?

Enjoy the process. Engineering isn't just about solving problems—it's about making an impact. Whether it's improving safety, efficiency, or enabling new technologies, take pride in seeing how your work shapes the real world.

Stay curious and never stop learning. Seek mentors who can share their experiences—it's an invaluable part of professional growth. Every challenge you face is a learning opportunity.

Closing Thoughts

Harwin's presence at Electronica India 2025 underscores its enduring commitment to innovation, reliability, and engineering excellence. As the company looks to expand its footprint in India and beyond, its mission remains unchanged—to empower engineers with high-performance, dependable interconnect solutions built to last.

With visionaries like Andrew McQuilken and William Harwin at the helm, Harwin continues to set new standards in the art of connection—where reliability meets innovation, and engineering meets purpose.

Anritsu Spectrum Analyzer Powers Reliable Private 5G Testing

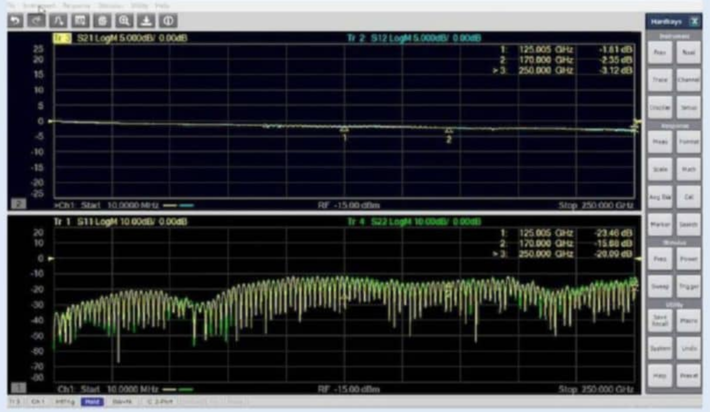
Stechi
sojitz Tech-Innovation
Anritsu
Advancing beyond
Private 5G

Anritsu's Field Master Pro MS2090A is a high-performance handheld spectrum analyzer designed for advanced wireless testing. It offers continuous frequency coverage up to 54 GHz, making it ideal for a wide range of applications, including private 5G network deployment and troubleshooting. With real-time spectrum analysis bandwidth up to 150 MHz, the MS2090A enables precise detection of signal anomalies and interference. Its rugged design and user-friendly interface ensure reliable performance in field environments. Trusted by regulatory bodies and industry leaders, the MS2090A is recognized for its accuracy, versatility, and ability to support efficient wireless quality assurance in modern communication networks.

Harogic Launches Rugged AI-Powered Spectrum Analyzer Platform

Harogic has unveiled a rugged, AI-powered spectrum analyzer platform designed for advanced signal analysis in demanding industrial, defense, and aerospace environments. This all-in-one device combines durable hardware with intelligent software to deliver fast, accurate signal detection, classification, and troubleshooting. Engineered for field use, it offers high dynamic range, wide frequency coverage, and real-time diagnostics, ensuring reliable performance in harsh conditions. Its integrated, AI-driven features streamline workflows and reduce operator dependency, accelerating decision-making. With a user-friendly interface and automated processes, Harogic's solution redefines spectrum analysis standards, meeting the rising need for smart, resilient tools in mission-critical and complex signal monitoring applications.

Keysight Extends VNA Testing Capabilities to 250GHz



Keysight Technologies has launched the NA5305A (170 GHz) and NA5307A (250 GHz) frequency extender modules, along with the 85065A calibration kit, to enhance its PNA and PNA-X vector network analyzers. These tools enable fully calibrated, broadband S-parameter measurements from 100 kHz up to 250 GHz in a single sweep, eliminating the need for narrowband stitching. Supporting four-port differential testing, the system allows precise validation of high-speed semiconductors, interconnects, and sub-THz devices critical for AI and next-gen communications. Partnered with probe and cable specialists, Keysight delivers a comprehensive, high-performance testing ecosystem for future technologies.

Rohde & Schwarz Introduces Compact, High-Performance MXO 3 Oscilloscopes

Rohde & Schwarz has launched the MXO 3 series, expanding its oscilloscope lineup with compact, high-performance models ideal for modern engineering needs. Available in four- and eight-channel variants, the MXO 3 offers bandwidths from 100 MHz to 1 GHz and integrates MXO-EP ASIC technology for industry-leading real-time capture rates. Key features include 12-bit resolution, HD mode up to 18 bits, and advanced triggering and FFT capabilities. With a lightweight design, intuitive touchscreen, and low noise, it suits both lab and field use. Competitively priced from EUR 5,350, the MXO 3 supports optional upgrades like MSO channels, waveform generation, and protocol decoding.

New power technologies for industry modernization!

Patrick Le Fèvre
Chief Marketing
& Communication Officer,
Powerbox

> *“Reaping the benefits of the three aforementioned technologies, as long as five years ago USB Charger manufacturers were the early adopters, developing and commercializing high-power density power supplies, which many of us are probably already using when charging our phones or laptops.”*

Industrial modernization is not just a buzz phrase, and with the implementation of new technologies required by Industry 4.0, many companies are migrating from traditional process control and infrastructures to networked types, including more communication, and with better utilization of energy must consider either upgrading existing equipment or buying brand new. When considering the installed base, taking into account the cost of a new installation and downtime, then upgrading and refurbishing is often considered an attractive solution. However, adding new functionality into existing packaging and enclosures can be very challenging. In a single article it is almost impossible to cover the wide variety of business cases when upgrading industrial equipment, but it is interesting to consider a dilemma faced by system architects: to get more power into a form, fit & function (3F) package, or to add more functionality to it while maintaining full compatibility with the installed equipment (Figure 01). So, what are the latest innovative power solutions that make this possible?

The benefits of the Wide Band Gap technology?

For decades, improvements in energy efficiency levels of power supplies have been made possible by technological evolutions. Moving from linear to switching technology was probably the major one, followed by several more minor leapfrogs until digital power came to market followed by the Wide Band Gap (WBG) semiconductors (Gallium Nitride (GaN) and Silicon Carbide (SiC). Despite it having been on the market for several years, with the emerging WBG technology and the possibilities offered by those components, digital control becomes an absolute must and a major building block for power designers when developing new products, especially when addressing 3F as associated with industrial modernization. Component wise, WBG transistors are without doubt the ones that will prevail in the coming years.

What is interesting with WBG semiconductors is that we see a similar situation to when the first power MOSFETs were launched. Some immediately considered the benefits of WBG, and that despite early products not being very user friendly due to them being based on a depletion mode that requires very specific drivers, it didn’t take too long for power semiconductors manufacturers to provide ‘easy-to-use’ versions and solutions.

It is now couple of years since manufacturers began promoting the benefits of that technology, but if the Go- To-Market is ready, in industrial applications the Go-To-Application for mass users still requires a certain amount of time. We are all familiar with the ‘camel-back’ curve reflecting new technology adoption and crossing the chasm (Figure 02). Experienced power designers have crossed that technological chasm many times, with the latest one being the migration from analog control to digital and adopting WBG followed the same pattern, but first driven by consumers’ applications e.g., USB chargers and the automotive industry implementing WBG in powertrains where on-board and out-board chargers boosted adoption in those segments.

WBG technology offers the benefit to increase switching frequency with high efficiency making it possible to reduce the size of the power supply and to pack more power into a similar packaging, but by itself this is not enough to meet 3F requirements. For sure, the evolution of semiconductors is very important but, in the quest to increase power density, to reduce power losses and to offer space for more functionality, power designers must consider the transformer aspect and how to make them smaller and better integrated.

In that respect power designers have explored the potential of advanced planar transformers with interleaved multi-core technology. Not all power supplies require megahertz switching but considering the potential of WBG semiconductors and the gain in power density, power designers will have to consider new types of transformers and new winding techniques. This points to a situation where more research is required rather than ready for mass production, but the situation is being helped by ferrite manufacturers developing new materials and also by Artificial Intelligence software shortening time to design and test new transformer types (e.g., Frenetic, Simba).

One specific example of that is the research we conducted at PRBX, combining digital control, WBG-GaN, and multicore transformers with advanced wiring and auto-tuned performance within the wide operational range that we see in some industrial applications that require extremely wide input voltage ranges, as well as outputs subject to repetitive peak loads. Final products are actually at the design stage although preliminary results we achieved are very encouraging and would not have been possible without the combination of digital control, WBG technology and advanced magnetics (Figure 03).

At this point we can joyfully ponder the level of integration and how much could be gained by combining the three aforementioned technologies: digital-control, WBG and integrated transformers. To illustrate that, the EPC9159 module demonstrated by Efficient Power Conversion (EPC), using the 40V GaN EPC2067, is very interesting and the combination of the three technologies has made it possible to shrink a power converter to an unprecedented size of 22.9 x 17.5 mm, reaching a power density of 5kW/inch cube in a small matchbox format (Figure 04).

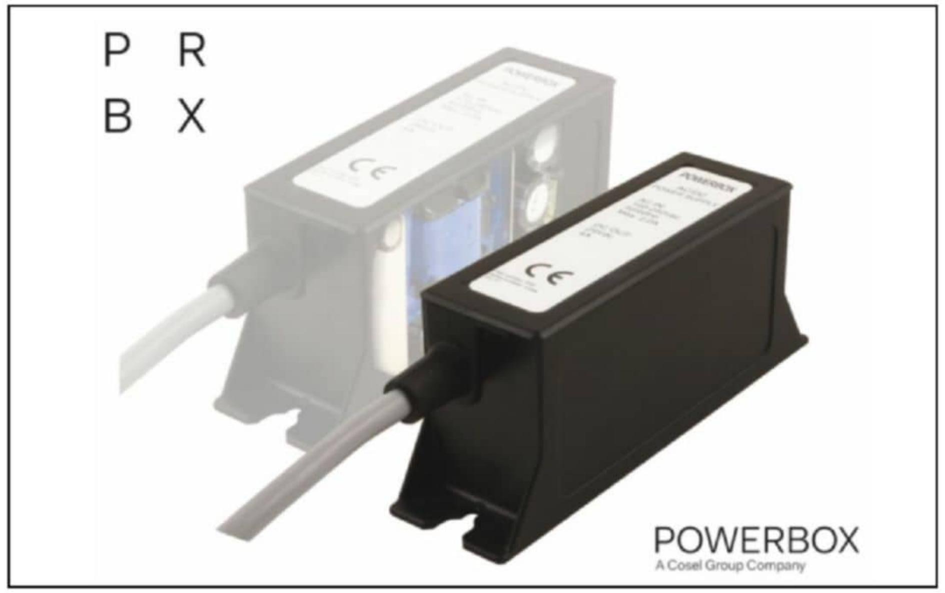


Figure 01: Example of industrial power supply, which could benefit from new technologies to double the output power from 100W to 200W matching the 3F (Source: PRBX)

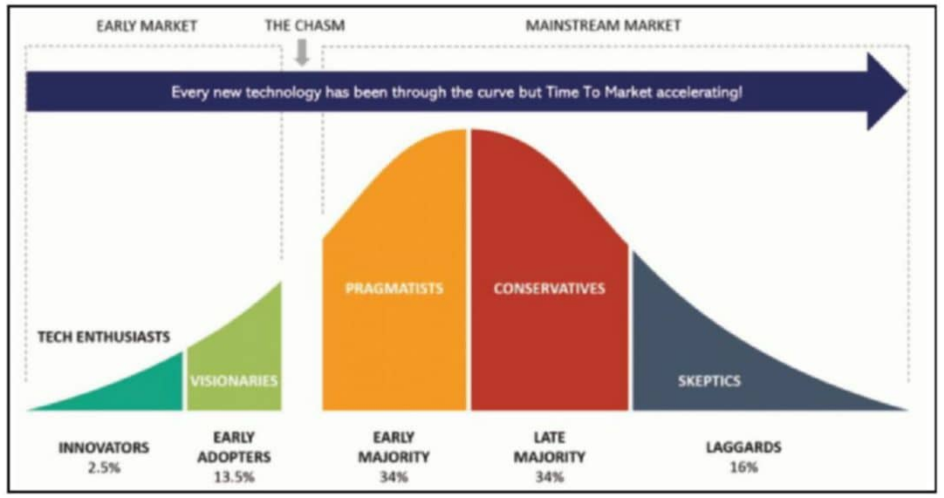


Figure 02: the ‘camel-back’ curve reflecting new technology adoption and crossing the chasm (Source: PRBX / Geoffrey A. Moore)

From research to applications

Reaping the benefits of the three aforementioned technologies, as long as five years ago USB Charger manufacturers were the early adopters, developing and commercializing high-power density power supplies, which many of us are probably already using when charging our phones or laptops. In the curve of market adoption, the industrial segment is more conservative and is taking a longer time to evaluate new technologies, to verify performance levels and reliability in operating conditions (which are clearly more demanding than a USB charger), verifying robustness, securing supply chains and long-term sustainability.

It’s not possible to cover all examples but it is interesting to mention the modernization of a microelectronics factory that uses many power supplies to power sensors, transmission systems and alarms. Originally powered by a 50W single output in a conventional open frame format, the modernized architecture required a very compact power solution three time smaller than the conventional products, to fit into a smaller packaging, originally hosting a 25W power supply. For simplification, the Upgrade Manager in charge of the project required the 50W power solution to fully comply with the 3F of their referenced solution, no compromise possible and mandatory to be qualified.

Based on the laws of physics, the only way to reach such power density was to increase the switching frequency, to integrate magnetics and to use an optimized power topology (Figure 05), all of those and reducing the power consumption of the overall system.

Conclusion:

The given example is one of many but as in the consumer and automotive segments, the implementation of the three combined technologies: Digital Control, WBG and integrated magnetics will become preponderant when developing power solutions for industrial applications. It’s a very exciting time for power designers to participate in industrial modernization, and to implement technologies contributing to reduce energy consumption.

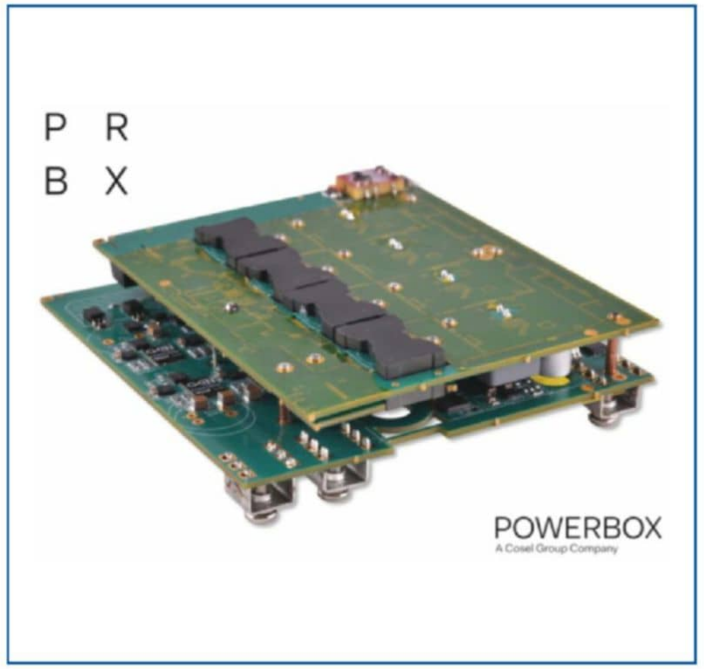


Figure 03: High power density PSU benefiting from planar magnetics, WBG and digital control. (Source: PRBX)

EPC9159 – 1 kW, 48 V/12 V
LLC Reference Design Board

Figure 04 : EPC Reference design 1kW LLC power converter (Source: PRBX/EPC)

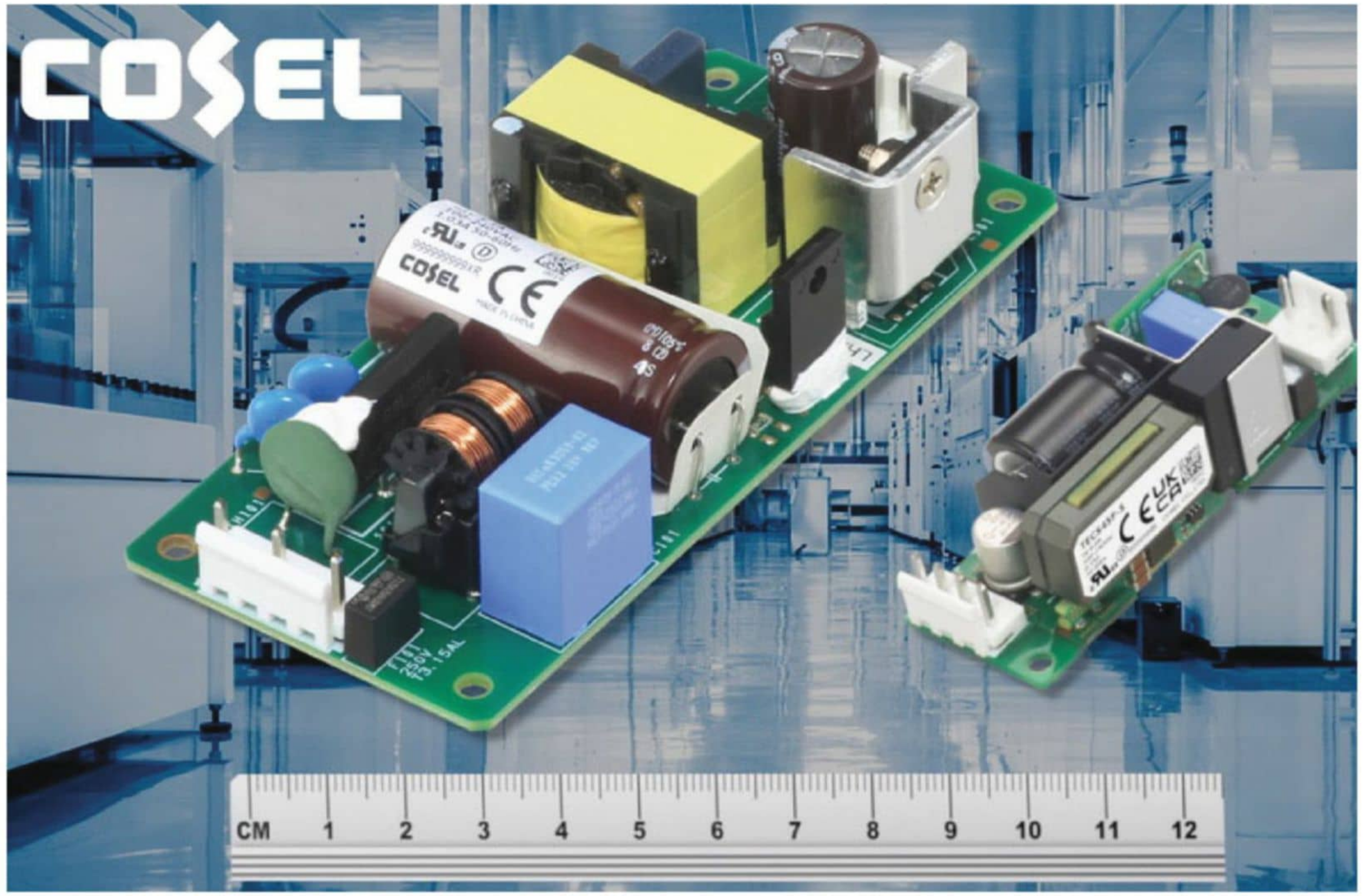


Figure 05 – Example of size reduction, in a 50W power supply, offered by the new power technologies combining WBG, Digital Control and Integrated magnetics developed by COSEL. (Source: PRBX/COSEL/Shutterstock/ssguy)

Accelerating High-Speed Network Test from Lab to Field

Shashikanth MC
Director-Sales,
Lab & Production, VIAVI

Emerging applications like AI, ML, high-performance computing (HPC), virtualization and quantum computing are driving bandwidth and scale at an accelerating rate, creating increasingly difficult challenges for manufacturers of chips, pluggables and network equipment's. The need for high data rates in data centers, essential for providing low-latency and high-throughput services, IoT, rapid expansion of cloud services, AI-driven infrastructure and many such applications are pushing higher optical networks to 1.6Tb/s and beyond.

To address this, architects and developers need modern, sophisticated instrumentation to test at these higher speeds while maintaining accuracy, deployment and testing efficiency, and overall cost effectiveness. As AI networks continue to fuel ethernet demand, advanced, next-gen testing platform designed for challenges of speed and scale is essential for testing RoCEv2 (RMDA over Converged Ethernet networks v2) traffic and validate the performance and reliability of AI network fabrics.

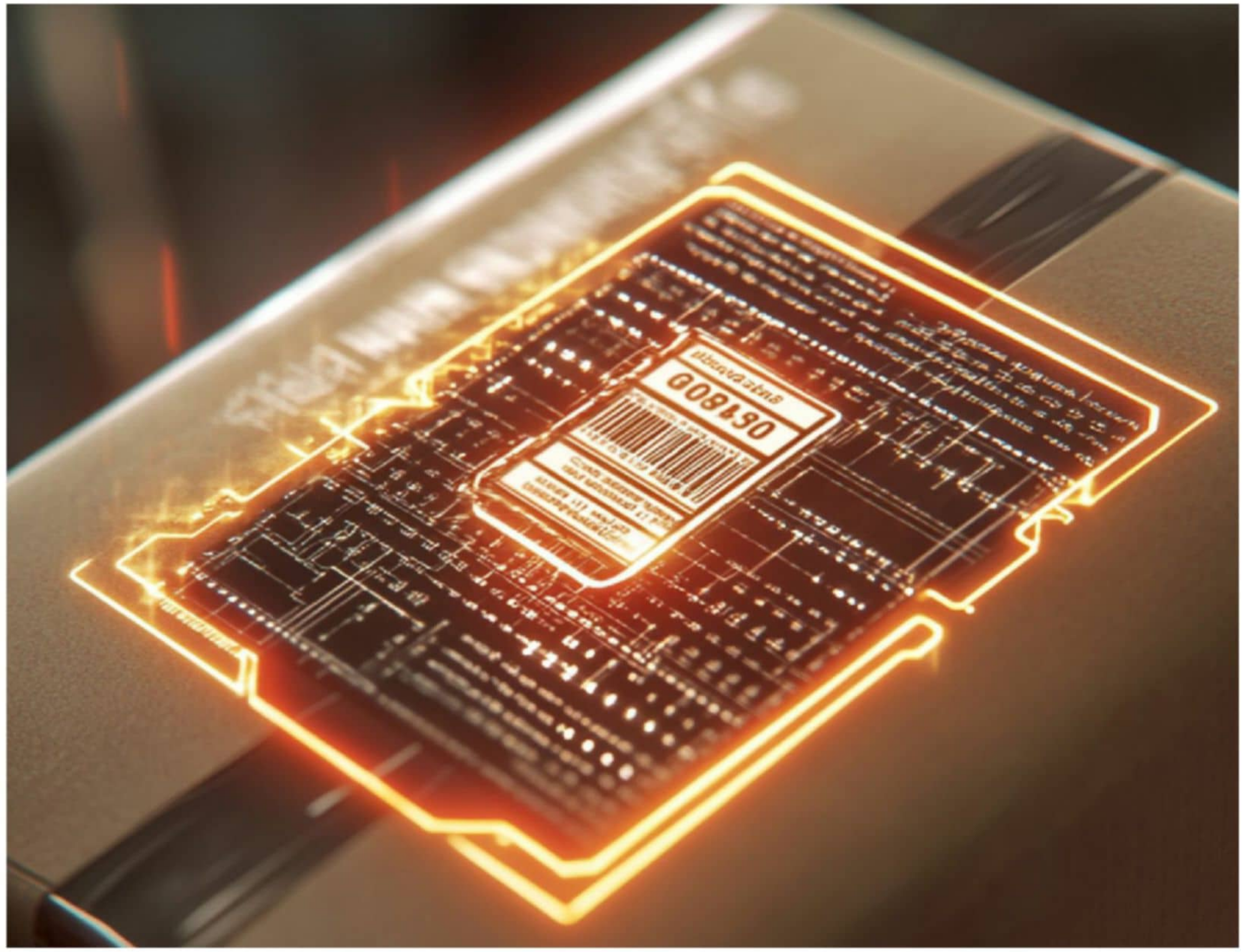
Perfect for high-speed module suppliers, ICPs, NEMs and service providers who work on high-speed Ethernet projects, ONE LabPro ONE-1600 supports manufacturers of Integrated Circuits (ICs), transceivers, and switching systems operating up to 1.6Tb/s with R&D, System Verification Testing (SVT), and live production and manufacturing testing.

The ONE LabPro ONE-1600 provides a highly advanced test platform for physical layer silicon fully aligned with emerging standards, the ability to test framed and unframed traffic, and enables support for high-bandwidth network switching devices at the heart of Ethernet fabric for AI at scale. Featuring the highest levels of port density and scalability in the market, ONE LabPro scales to 102Tb/s of test bandwidth such as 64 x 1.6Tb/s test ports using ONE-1600 modules or 128 x 800Gb/s test ports using HSE-800 modules, orchestrated by a single controller. The system can synchronize to sub-nanosecond mixed combinations of test modules, centrally managed by the controller, with full breakout capabilities, multi-user logical port support, and single-user per logical port granularity.

With a contemporary, web-based user interface and next-generation, python-based automation framework, ONE LabPro enables advanced traffic generation and analysis to troubleshoot and test the functionality and performance of ICs, pluggable interfaces, switching and routing devices, and networks. VIAVI continues to advance state-of-the-art technology for testing next-generation network components to not only enable products to be delivered to market faster, but also to ensure peak performance throughout the network lifecycle.

> *“VIAVI continues to advance state-of-the-art technology for testing next-generation network components to not only enable products to be delivered to market faster, but also to ensure peak performance throughout the network lifecycle.”*

The Architecture Behind Intelligence: Designing the Future of Semiconductor Packaging



The semiconductor industry is undergoing a profound transformation as the world moves into what many describe as the "convergence era" — a phase where digital systems, physical infrastructure, and biological environments increasingly intersect. At the heart of this shift lies semiconductor packaging, an area once seen as the final step of chip manufacturing but now recognized as a strategic enabler of performance, power efficiency, and system-level integration. Advanced packaging technologies are redefining how chips are interconnected, cooled, protected, and scaled — directly influencing breakthroughs across AI, cloud and edge computing, automotive electronics, next-generation connectivity, and more.

To understand the global inflection points shaping this space, we spoke with **Mr. Ram Trichur**, Global Head of Semiconductor Packaging at **Henkel Adhesive Technologies.** With Henkel playing a pivotal role in delivering advanced materials for high-density, high-performance, and heterogeneous chip designs, Mr. Trichur shares insights on market evolution, opportunities for innovation, sustainability priorities, and India's emerging position as a key semiconductor packaging hub.

What key global trends are currently shaping the semiconductor packaging industry?

We are living in a "convergence era," where digital, physical, and biological systems, once distinct, are now merging and reshaping how we live, work, and communicate. This fusion is being driven by breakthroughs across multiple technological domains, including AI, advanced computing, power electronics, connectivity, and materials science. Semiconductor packaging serves as the key enabler for the high-performance semiconductor devices that power cloud and edge infrastructure, providing the structural and functional foundation for this convergence. It has become the critical link that translates these technological inflections into real-world capability.

Where do you see the biggest opportunities and challenges for packaging in the next 3–5 years?

The end markets—particularly data center, mobile, and automotive—are all undergoing major technology inflections. AI-driven workloads, growing high-performance computing demands, advanced connectivity, and rising power-efficiency requirements are accelerating the need for packaging innovation. These trends are pushing existing packaging technologies to their limits and driving demand for solutions that address bandwidth scaling, thermal management, warpage control, optical and power integration, and manufacturability at larger formats and higher throughput.

Significant opportunities are emerging in heterogeneous integration, fine-pitch interconnects, large-area packaging, 2.5D/3D stacking, and panel-level processing. Each of these advancements also requires next-generation materials for advanced packaging, where new chemistries can deliver both performance and reliability improvements.

How is Henkel building advanced packaging capabilities to support the semiconductor ecosystem in India and globally?

Globally, Henkel continues to expand its investments in advanced packaging, which we see as a key enabler of AI-driven systems and a major growth vector for our semiconductor materials business.

Our focus is on two priority markets — data center and mobile — where rapid technology inflections are driving the need for new package architectures and, in turn, innovative materials. In data-center applications, packaging requirements include large package footprints (>6× reticle size), fine-pitch and fine-gap assembly, next-generation interposer and substrate formats, transition to panel-level manufacturing, integrated power delivery and co-packaged optics, and advanced thermal and warpage-control capabilities. In mobile applications, miniaturization, z-height reduction, and rigorous cost-performance optimization dominate the requirement.

Henkel is expanding its R&D and product portfolio across underfills, encapsulants, thermal interface materials, adhesives, and optical materials. As India builds out its advanced-packaging ecosystem, we expect a similar technology roadmap to take shape, closely aligned with global industry trajectories.

What role does packaging play in enabling performance for edge AI, 5G, IoT, automotive, and high-performance computing?

There are both commonalities and unique requirements in semiconductor packaging across different verticals. A core shared challenge is achieving higher performance and energy efficiency while maintaining cost competitiveness, and packaging serves as a critical lever to strike this balance. By offering diverse processing and integration options across multiple hierarchy levels — die, wafer, strip, interposer, substrate, and panel — advanced packaging enables optimal electrical performance, power delivery, thermal management, and mechanical reliability, while also managing cost. Functionality integration is another common dimension; advanced packaging facilitates the integration of chiplets, sensors, RF components, passives, and shielding elements to enhance bandwidth, intelligence, communication, signal integrity, and system-level performance.

At the same time, each application vertical has specific needs: mobile demands extreme

**Mr. Ram Trichur,
Global Head of Semiconductor Packaging at Henkel Adhesive Technologies**

> *"Semiconductor packaging serves as the key enabler for the high-performance semiconductor devices that power cloud and edge infrastructure, providing the structural and functional foundation for this convergence."*

The Architecture Behind Intelligence: Designing the Future of Semiconductor Packaging

miniaturization and z-height reduction, while automotive requires extended reliability and environmental robustness. These varying requirements drive material, process, and architectural differentiation in semiconductor packaging design.

Can you share some of Henkel's recent innovations in packaging materials and solutions that address miniaturization and power efficiency?

Henkel recently introduced it's latest wafer-level liquid compression molding material, Loctite Eccobond LCM 1000AG-1. This material is an anhydride-free, ultra-low warpage liquid molding material designed for wafer-level packaging (WLP) and panel-level packaging (PLP) processes aimed to increase performance and enable miniaturization. This new product delivers industry-leading stable warpage control throughout redistribution layer (RDL) processing, enabling high-yield, reliable advanced packaging solutions for our customers.

In power electronics, Henkel continues to drive efficiency gains in power discretes and modules with its portfolio of high-thermal die-attach and sintering materials. We recently launched Loctite Ablestik 8068TH, a pressure-less sintering material that offers 150 W/mK thermal conductivity, low voiding, and compatibility with die sizes up to 5×5 mm across substrates such as laminate, Ag/PPF, and Cu leadframes. We are further advancing innovation with solutions for Cu leadframes, thin-die and bare-Cu finish substrates, and are developing next-generation Cu-based pressure sintering die-attach materials for power-module applications.

How is sustainability influencing packaging design, processes, and material selection at Henkel?

Sustainability is integral to Henkel's product design and innovation strategy, guided by our commitments to climate action, circularity, safety, and transparency. In our electronics and semiconductor packaging business, this translates into specific material and process initiatives. We are actively eliminating PFAS, removing "forever chemicals" from both our commercial portfolio and all new product developments. We are also advancing circularity by exploring recycled silver in our die-attach products — a solution that significantly reduces carbon emissions by more than 75% while maintaining performance parity with virgin silver.

In parallel, we are developing "debond-on-demand" materials and processes to enable repair, disassembly, and recycling of electronic modules and devices. Additionally, we are pursuing the use of bio-based raw materials to partially replace fossil-based feedstocks, helping to lower emissions, enhance circularity, and deliver high performance that aligns with our customers' sustainability and operational goals.

What collaborations or partnerships are helping accelerate packaging innovation in India and worldwide?

Henkel's long-standing success in semiconductor packaging materials is rooted in deep collaboration across the value chain with customers, co-suppliers, equipment manufacturers, and academic partners. We engage early in the product-design phase to co-engineer high-impact material solutions that address real-world packaging challenges. Our collaborative R&D spans high-thermal die attach, underfills, encapsulants, adhesives, and optical materials for applications in power electronics, advanced memory, mobile processors, and AI/HPC platforms. We also work closely with upstream raw-material suppliers to align and accelerate long-term innovation roadmaps, ensuring Henkel's solutions remain closely synchronized with future packaging architecture and industry requirements.

From your perspective, what steps are critical for India to emerge as a strong hub in advanced semiconductor packaging?

India is rapidly accelerating investments in electronics and semiconductor packaging, supported by strong public–private partnerships and significant government incentives. At the same time, academic institutions are actively building the talent pipeline necessary for advanced manufacturing and innovation in leading-edge technologies. For India to establish a sustainable leadership position, long-term commitment is essential — including policy stability, global collaboration, and building a resilient ecosystem spanning materials, equipment, and skilled talent. With its strategic geopolitical position and expanding domestic demand, India is well-positioned to emerge as an important global hub for advanced semiconductor packaging.

What are Henkel's key showcases at Productronica 2025 that industry professionals should look out for?

Henkel continues to serve as a trusted materials partner across both consumer electronics and semicondu

Dell Appoints Atul Mehta as India Channel Leader

Atul Mehta

Dell Technologies has appointed Atul Mehta as Senior Director and General Manager – India Channels, tasked with strengthening the company's partner ecosystem and driving channel-led growth. Based in Gurgaon, Mehta will report to Ravi Bharadwaj, VP of Partner Ecosystem, APJC. He succeeds Vivek Malhotra, who now supports India Sales. With over 20 years in the tech sector and a Dell veteran since 2007, Mehta most recently led Dell India's Consumer Business. Known for his strategic insight and collaborative leadership, Mehta aims to harness India's fast-evolving tech landscape, particularly AI, to drive innovation and deepen partnerships across the country.

Doug Recker Named President of Duos Technologies Group

Doug Recker

Duos Technologies Group, Inc. has appointed Doug Recker as its new President, reporting to CEO Chuck Ferry. A data center and telecom veteran with over 30 years of experience, Recker will drive the company's growth in Edge Data Centers and AI-powered digital infrastructure. He has been instrumental in advancing Duos' presence in the EDC and colocation markets through its subsidiary, Duos Edge AI. Recker previously founded Edge Presence and Colo5, both acquired by major firms. His leadership will focus on scaling infrastructure for underserved communities and key institutions. The move aligns with Duos' strategy to expand and deliver shareholder value.

Narayan Kumar Appointed CBO of Panasonic's New Division

Narayan Kumar

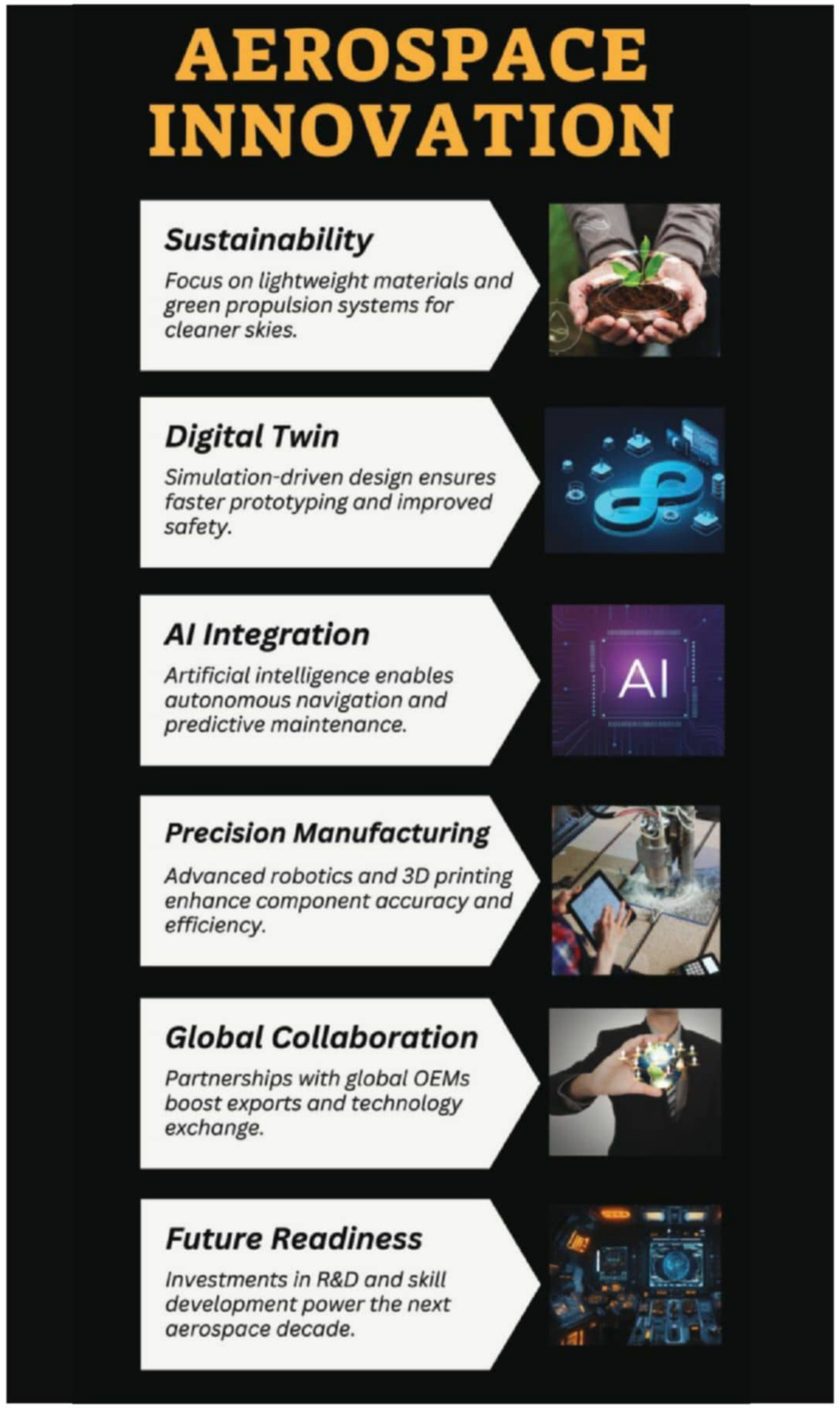
Panasonic Life Solutions India has merged its Industrial Devices Division and Energy Solutions Division to form Panasonic Industry & Energy India (PIDEIN), aiming to boost efficiency, innovation, and customer experience. This integration unifies Panasonic's offerings in electronic components and sustainable energy solutions, targeting sectors like automotive, ICT, HVAC, and industrial automation. Narayan Kumar, previously Divisional Director, is appointed Chief Business Officer of PIDEIN. The move reflects Panasonic's strategy to strengthen its market presence and support India's sustainable growth. PIDEIN will focus on delivering customized, energy-efficient solutions aligned with India's manufacturing ambitions and environmental goals, reinforcing Panasonic's long-term commitment to the region.

Samsung Semiconductor India Appoints Rajesh Krishnan Managing Director

Rajesh Krishnan

Samsung Semiconductor India Research (SSIR) has appointed Rajesh Krishnan as its new Managing Director, succeeding Balajee Sowrirajan. With over 30 years of semiconductor industry experience across India and the U.S., Krishnan brings deep expertise in strategic planning, innovation, and global operations. Previously leading SSIR's Memory Division, he played a key role in advancing DDR and HBM technologies for AI, embedded, and automotive applications. His background spans computer architecture, compilers, and telecommunications. SSIR expects Krishnan's leadership to strengthen its focus on AI, high-performance computing, and next-gen memory, aligning India's engineering strengths with Samsung's global semiconductor innovation goals.

Tamil Nadu Takes Flight: Inside India's Emerging Aerospace Powerhouse



AEROSPACE INNOVATION

Sustainability

Focus on lightweight materials and green propulsion systems for cleaner skies.

Digital Twin

Simulation-driven design ensures faster prototyping and improved safety.

AI Integration

Artificial intelligence enables autonomous navigation and predictive maintenance.

Precision Manufacturing

Advanced robotics and 3D printing enhance component accuracy and efficiency.

Global Collaboration

Partnerships with global OEMs boost exports and technology exchange.

Future Readiness

Investments in R&D and skill development power the next aerospace decade.

The southern Indian state of Tamil Nadu is rapidly asserting itself as a strategic hub in the aerospace and defence sector. What once was predominantly known for its automotive and manufacturing prowess is now pivoting into connected factories, digitalised supply chains, and autonomous flight systems — helping India advance its ambitions in civil aviation, space, drones, and defence. This article explores how Tamil Nadu is transforming its industrial ecosystem, what is driving the change, and how the future of aerospace looks in this region.

Building the Ecosystem: Manufacturing + Connectivity

A key part of the aerospace revolution in Tamil Nadu is the rise of smart, connected factories and sophisticated manufacturing infrastructure.

The Aerospace Industry Development Association of Tamil Nadu (AIDAT), set up in 2016, aims to create an end-to-end ecosystem for aerospace and defence manufacturing in the state — covering design, engineering, and production. The state's industrial policies highlight the creation of Centres of Excellence for advanced manufacturing, robotics, 3D-design platforms, and aerospace-specific manufacturing technologies. For instance, a Centre of Excellence in Emerging Technologies in Manufacturing was established in partnership with global firms to support MSMEs and start-ups.

The region leverages its existing industrial heritage — Tamil Nadu already has strong manufacturing clusters for automotive, electronics, and heavy engineering. With this as a base, it is increasingly tapping into aerospace: high-precision components, avionics manufacturing, and assembling sub-systems. The state government has declared its ambition to become India's leading aerospace and defence innovation hub.

In practical terms, this means factories are becoming digitally connected: sensors, IoT, robotics, and smart quality-control systems are being integrated into manufacturing lines that produce aerospace-grade components. The goal is to meet global aerospace supply-chain standards while remaining physically located in Tamil Nadu.

Drone Systems and Autonomous Flight: The Next Frontier

A major dimension of this aerospace push is unmanned aerial systems (UAS) and autonomous flight platforms. Tamil Nadu is positioning itself to play a central role in this segment.

The state is setting up India's first Common Testing Centre for Unmanned Aerial Systems (drones) at Vallam Vadagal near Sriperumbudur, with an investment of around ₹45 crore. The government is also drafting a roadmap for the so-called Low Altitude Economy (LAE) — operations up to about 1,000 metres covering both manned and unmanned platforms — aiming to position itself as India's LAE hub.

Companies are already scaling up manufacturing of advanced UAS in the state. For instance, Garuda Aerospace inaugurated an advanced Agri-Drone manufacturing facility near Chennai spanning 35,000 sq ft. In the defence space, drone- and UAV-related manufacturing and testing are becoming core capabilities.

The integration of AI, autonomy, sensor-fusion, and real-time analytics is being targeted by domestic start-ups. Chennai-based drone firms are positioning their products as "drones that don't just fly — they think", featuring proprietary AI and modular autonomous designs.

In short: Tamil Nadu is not only building factories to make aerospace components but also fostering the manufacturing, testing, and deployment of autonomous flight systems.

Mission Space: Launch Systems & Beyond

Beyond drones and manufacturing, Tamil Nadu's aerospace ambitions extend into the space sector and launch technologies.

The state hosts key facilities of the Indian Space Research Organisation (ISRO), such as the ISRO Propulsion Complex near Mahendragiri in Tirunelveli district, which tests cryogenic and semi-cryogenic engines. Private start-ups in Tamil Nadu are also emerging — for example, AgniKul Cosmos, based in Chennai, is developing small-lift launch vehicles like the "Agnibaan".

These developments signal a shift from purely component manufacturing to full system-integration and space-flight production capability within the state. Thus, the aerospace revolution in Tamil Nadu includes not just connected factories but also end-to-end flight systems, including orbital launch capabilities.

Smart Factories Connect the Supply Chain

The term "connected factory" means more than just mechanised production lines; it involves fully integrated digital supply chains, real-time data analytics, predictive maintenance, and global export-ready quality systems.

In Tamil Nadu's aerospace push:

- The manufacturing ecosystem draws on the skilled labour of the automotive and engineering sectors, but upgrades the technology stack to aerospace-grade precision and traceability.
- Digital twins, 3-D simulation, additive manufacturing, and enhanced metrology are being used through new Centres of Excellence.
- These factories are connected not only internally (machines talking to machines) but also externally: supply-chain links to global aerospace OEMs, real-time logistics tracking, and export compliance systems.
- The integration of autonomous flight systems — drones and UAVs — demands new manufacturing standards for avionics, embedded software, sensor-fusion modules, and real-time control systems.

Hence, the industrial transformation is deep — from conventional manufacturing to aerospace-grade smart factories that feed autonomous flight vehicles and high-precision space systems.

Why Tamil Nadu? What Gives It the Edge?

Several interlocking reasons explain why Tamil Nadu has become a hotspot:

- **Industrial base and workforce** – Tamil Nadu has long been a manufacturing hub, especially in automotive. This means access to factories, logistics, supply chains, and skilled labour. Aerospace entrants can leverage these strengths.
- **Government policy and enabling infrastructure** – The state has created the Tamil Nadu Defence and Industrial Corridor and other institutional vehicles to attract aerospace and defence investments, provide land, support start-ups, and build testing infrastructure.
- **Testing infrastructure** – The drone-testing centre and the Low Altitude Economy roadmap help reduce barriers for companies to operate and scale.
- **Emerging ecosystem of start-ups and technology firms** – With firms like Tunga, Garuda, and AgniKul operating locally, the ecosystem is being built organically, not merely as large OEMs replicating existing setups.
- **Global supply-chain connectivity** – Manufacturing in Tamil Nadu can serve not only Indian demand but also global aerospace supply chains, attracting international investment.

Together, these factors form a virtuous circle: policy enables infrastructure, infrastructure attracts firms, firms build local capabilities, and local capabilities improve global competitiveness.

Challenges & Emerging Opportunities

This aerospace revolution is not without challenges — but each challenge presents an opportunity.

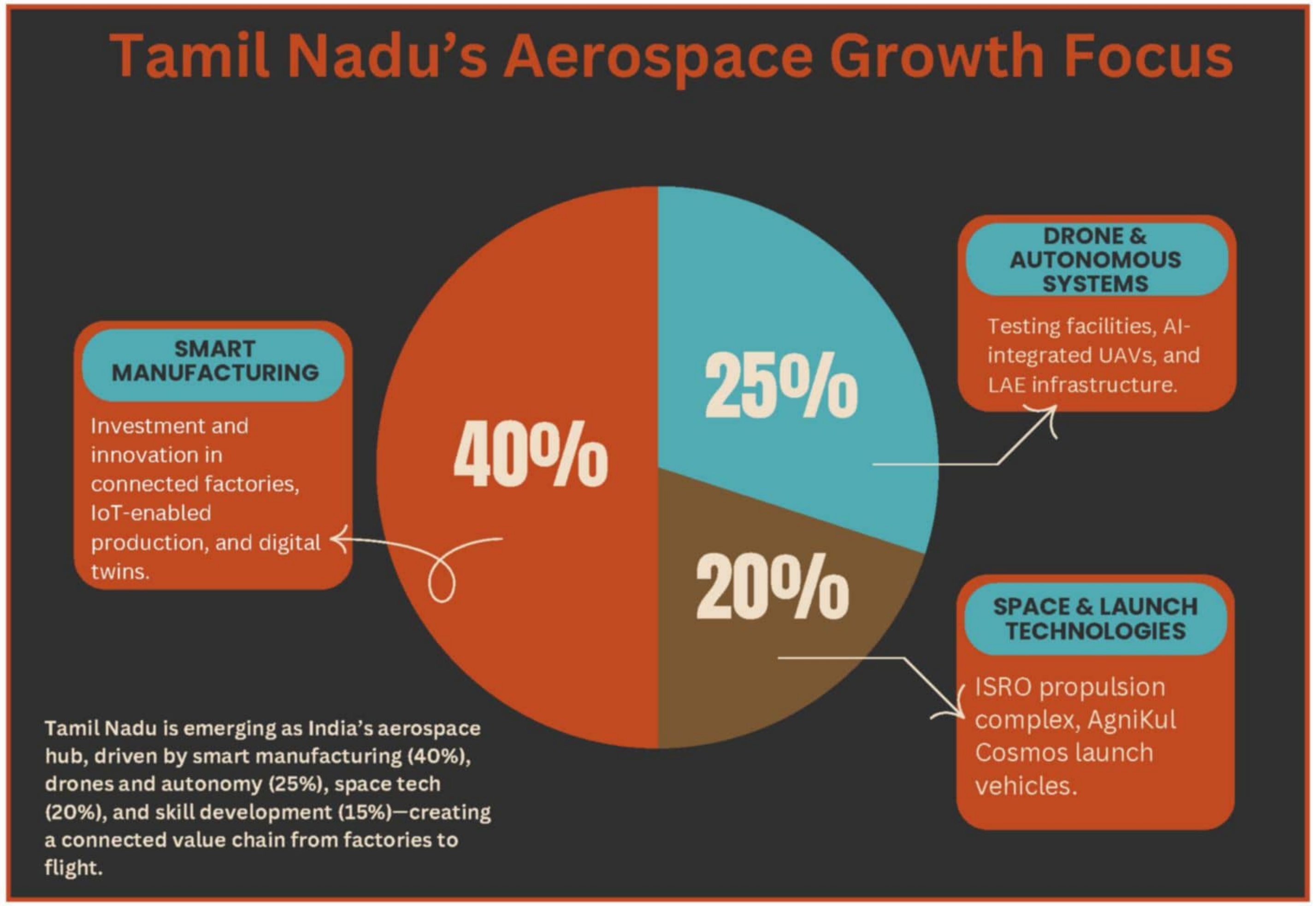
Challenges:

- Aerospace and defence manufacturing require extremely high quality assurance, certification, and process maturity. MSMEs may find it hard to ramp up quickly.
- Autonomy and flight systems bring regulatory complexity: airspace clearance, beyond-visual-line-of-sight operations, and operator training. Tamil Nadu's roadmap for LAE addresses this, but execution will be crucial.
- Supply-chain resilience and import-dependence remain issues, as many critical aerospace parts are still imported.
- R&D intensity: For autonomous systems, sensor-fusion, AI, real-time control, and reliability under extreme conditions are non-trivial and need localized innovation.

Opportunities:

- **With the drone-testing centre and LAE roadmap, Tamil Nadu can become the go-to location in India for low-altitude autonomous aviation operations** — delivery drones, agri-drones, inspection drones, and urban air mobility prototypes.
- **The connected factory model allows Tamil Nadu to integrate into global aerospace value chains** — aero-engine components, composites, avionics, and system integration.

Tamil Nadu's Aerospace Growth Focus



Tamil Nadu is emerging as India's aerospace hub, driven by smart manufacturing (40%), drones and autonomy (25%), space tech (20%), and skill development (15%)—creating a connected value chain from factories to flight.

- **Space systems and launch vehicles:** The presence of ISRO facilities and private start-ups means Tamil Nadu could host entire small-satellite and sub-orbital manufacturing clusters.
- **Skilled workforce evolution:** As more universities link up with industry, the talent pipeline for aerospace and autonomy will strengthen. The state's intent to train pilots and drone operators is a strong step forward.

A Vision of Autonomous Aerospace in Tamil Nadu

Imagine a scenario five years from now:

- A factory near Coimbatore uses real-time IoT sensors and digital-twin models to manufacture high-precision aero-engine components, where robots and human operators collaborate seamlessly.
- Nearby, a drone-manufacturing plant near Chennai produces autonomous inspection UAVs, integrates AI flight-control systems, and exports them globally.
- At Vallam Vadagal, BVLOS flights are conducted regularly — delivery drones, agricultural spray drones, inspection drones for power lines — supported by the state's LAE infrastructure.
- A small satellite launch-vehicle start-up completes 3-D-printed engine components and assembles launch systems as part of India's growing private space ecosystem.
- The supply chain connects seamlessly — raw-material suppliers, composite manufacturers, avionics firms, and integration houses, all networked digitally with global orders flowing in.
- Skilled engineers and drone pilots are trained through state-supported programmes; academic institutions collaborate with industry to create courses in autonomy, aerospace systems, and manufacturing excellence.

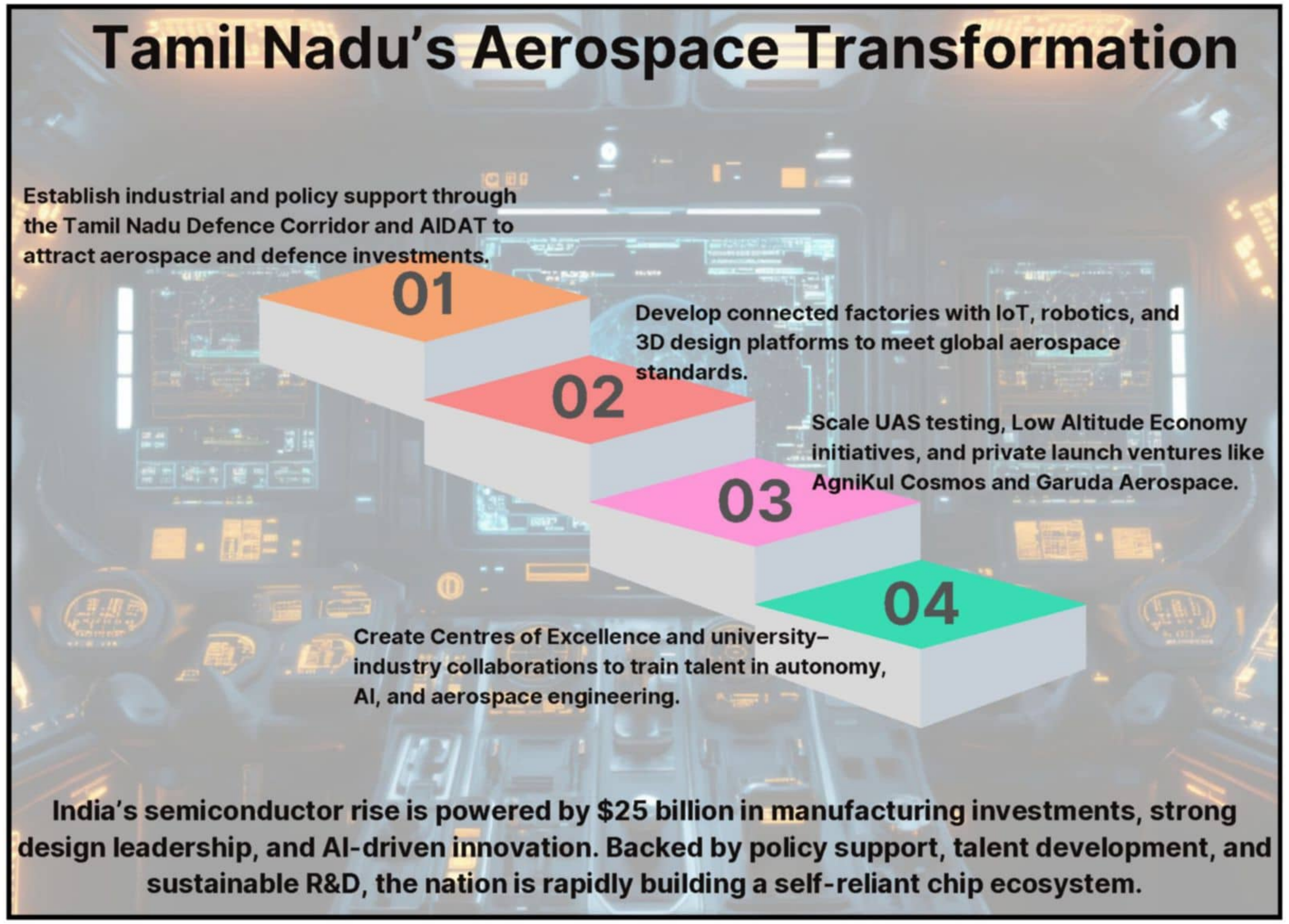
In such a vision, Tamil Nadu is not just a manufacturing region but a smart aerospace cluster — one where connected factories produce autonomous flight systems, integrate with space systems, and contribute to both civil and defence aerospace missions.

Conclusion

The aerospace revolution in Tamil Nadu is more than a regional industrial upgrade — it represents a structural shift in how aerospace is done in India. From connected smart factories to manufacturing autonomy-enabled flight systems and launch vehicles, the state is orchestrating multiple threads: infrastructure, policy, manufacturing, autonomy, and supply-chain integration.

Tamil Nadu's aerospace journey reflects India's broader vision — an ecosystem where innovation, automation, and human skill merge to create the next generation of flight. It is a story of transformation, ambition, and technology converging — one that could well define the future of Indian aerospace.

Tamil Nadu's Aerospace Transformation



Establish industrial and policy support through the Tamil Nadu Defence Corridor and AIDAT to attract aerospace and defence investments.

Develop connected factories with IoT, robotics, and 3D design platforms to meet global aerospace standards.

Scale UAS testing, Low Altitude Economy initiatives, and private launch ventures like AgniKul Cosmos and Garuda Aerospace.

Create Centres of Excellence and university–industry collaborations to train talent in autonomy, AI, and aerospace engineering.

India's semiconductor rise is powered by $25 billion in manufacturing investments, strong design leadership, and AI-driven innovation. Backed by policy support, talent development, and sustainable R&D, the nation is rapidly building a self-reliant chip ecosystem.

Arrow Electronics Launches AI Assistant for Cloud Partners

Arrow Electronics has launched ArrowSphere Assistant, an AI-powered copilot designed to help channel partners optimize their customers' cloud businesses on the ArrowSphere Cloud platform. This tool enhances cloud management by providing detailed data and visual aids, reducing manual tasks and clicks to improve operational efficiency. Since its limited launch in March 2024, 90% of users rated it 8 or higher, with over 94% recommending it. ArrowSphere Assistant helps partners discover new business opportunities, streamline FinOps, and improve security insights. Users praise its time-saving capabilities and ease of accessing key business information, boosting overall cloud service performance.

DigiKey Now Accepting Preorders for Arduino UNO Q

DigiKey has announced preorders for the newly launched Arduino UNO Q, a next-gen development board combining a Linux-based microprocessor (MPU) and a real-time microcontroller (MCU). Ideal for AI, IoT, robotics, and edge computing, the UNO Q offers dual-core architecture for high-performance processing and low-latency control. It features Arduino's Bridge framework for seamless MPU-MCU communication and comes preloaded with Arduino App Lab, enabling development in C++, Python, and AI containers. Designed for all levels—from students to professionals—the UNO Q supports rapid prototyping and industrial innovation. Preorders are now open exclusively on DigiKey's website, with shipping expected to begin shortly.

Refond LED and Optoelectronic Components at TME

TME now offers a wide range of Refond LED components, a trusted brand in optoelectronics used across consumer electronics, lighting, and automotive sectors. Refond's portfolio includes classic SMD LEDs in various sizes, colors (including RGB and RGBW), and beam angles, known for low power use and long life. The range also features UV-B and UV-C LEDs for specialized applications, as well as IR LEDs for remote controls and motion detection. Refond's optocouplers provide reliable signal isolation with compact SMD packaging, ideal for control systems, appliances, and industrial use. All components ensure efficiency, durability, and easy integration into modern electronics.

element14 Launches Smart Industry Hub for Engineers

SMART INDUSTRY

element14, a trusted distributor for electronic and industrial system design, maintenance, and repair, has launched its Smart Industry campaign—an all-in-one resource hub for engineers developing intelligent, automated industrial systems. The campaign showcases technologies for IIoT, robotics, machine learning, and predictive maintenance, featuring high-performance components from leading global suppliers like ADI, NI, Arduino, TE Connectivity, and more. As part of its six-part Innovative Living series, the campaign offers curated content, expert insights, and recommended products to support smarter design decisions. This initiative empowers engineers to streamline development, accelerate innovation, and create connected, future-ready manufacturing ecosystems with improved efficiency and reliability.

Mouser Ships Silicon Labs xG28 Kit for Sidewalk

SILICON LABS

Mouser Electronics now offers the Silicon Labs Wireless xG28 Explorer Kit for Amazon Sidewalk, a compact, low-cost development platform designed for rapid prototyping of IoT and wireless sensor applications. Powered by the EFR32SG28 dual-band wireless SoC, the kit supports Bluetooth Low Energy and sub-GHz FSK for extended connectivity. Ideal for battery-operated devices, it features Secure Vault®, AI/ML acceleration, and up to 49 GPIOs. Preloaded with Simplicity Studio, it enables fast development and seamless Amazon Sidewalk integration. The board includes USB, SEGGER J-Link, LEDs, buttons, and expansion via mikroBUS™ and Qwiic® connectors for flexible prototyping with various third-party accessories.

DigiKey Sponsors 2025 Global IoT Developer Series

works with
DigiKey

DigiKey, a global leader in electronic components and automation products distribution, is sponsoring the sixth annual Works With event series by Silicon Labs. The 2025 series features four global summits focusing on advancing IoT innovations across industries. Key events include in-person summits in Austin, Shenzhen, and Bangalore, followed by a virtual two-day summit. Experts from Silicon Labs, Amazon, Cisco, and more will discuss AI, software, and wireless advancements shaping connected technologies. DigiKey's sponsorship reflects its commitment to supporting engineers with access to extensive IoT components and solutions, while providing hands-on workshops, training, demos, and networking opportunities for developers.

RS PRO Offers Comprehensive, Affordable Industrial MRO Solutions

RS offers a wide range of RS PRO maintenance solutions tailored for industrial MRO professionals seeking reliable, cost-effective, and easy-to-install products. The RS PRO portfolio supports reactive, preventive, and predictive maintenance strategies, helping reduce downtime, extend equipment life, and lower operational costs. With thousands of ready-to-ship items—tools, sensors, connectors, switches, fasteners, fuses, enclosures, power supplies, and more– RS PRO ensures safety, compliance, and performance across industries. These solutions enable smarter asset management, real-time monitoring, and workflow optimization. Backed by expert support and fast delivery, RS PRO helps professionals futureproof productivity while staying on budget with pro-grade solutions—without the premium price.

Rochester and ADI Extend RF Product Support Globally

Rochester Electronics and Analog Devices have strengthened their partnership to ensure long-term global support for RF and microwave applications. This collaboration addresses common RF design challenges by offering extended availability of critical components, helping customers avoid costly redesigns or requalification. Rochester now stocks 11 million parts and 89 SKUs of ADI's RF-focused products, including amplifiers, mixers, switches, filters, modulators, and synthesizers, in addition to 1,100 existing SKUs. With over 20 years of collaboration, Rochester provides 100% authorized, traceable, and certified solutions, including licensed manufacturing of select end-of-life devices—ensuring consistent supply and trusted performance for high-reliability applications.

Mouser Ships Terasic Atum A3 Nano FPGA Platform

Mouser Electronics is now shipping the Terasic Atum A3 Nano, a compact, high-performance FPGA platform powered by Altera's Agilex™ 3 FPGA. Ideal for robotics, IoT, automotive, and imaging applications, the board features 135K logic elements, dual Arm® Cortex®-A55 cores, 64MB SDRAM, HDMI output, Gigabit Ethernet, and USB Type-C® with onboard USB-Blaster III. Offering up to 1.9x performance over Cyclone V, it supports LPDDR4 memory and Intel's variable pitch BGA packaging for increased I/O density. The 85 × 70 mm² board includes flexible GPIO options, MicroSD storage, and expandability for integrating displays, cameras, and peripherals into next-generation embedded designs.

Mouser Stocks STMicroelectronics STM32WBA6 Wireless MCU

ST
STM32WBA6

Mouser Electronics, a leading distributor of new semiconductor products, now stocks the STM32WBA6 wireless microcontroller from STMicroelectronics. This multiprotocol MCU combines high performance, efficiency, and flexibility with an ultra-low-power design. It features a 32-bit Arm Cortex-M33 core running up to 100MHz and integrates a 2.4GHz radio supporting Bluetooth Low Energy, Matter, Thread, and Zigbee protocols. The MCU accommodates up to eight antennas and an external power amplifier, with a packet traffic arbitration (PTA) interface for optimized wireless communication. Ideal for automotive, healthcare, sports, entertainment, home automation, and security applications, the STM32WBA6 offers versatile wireless connectivity solutions.

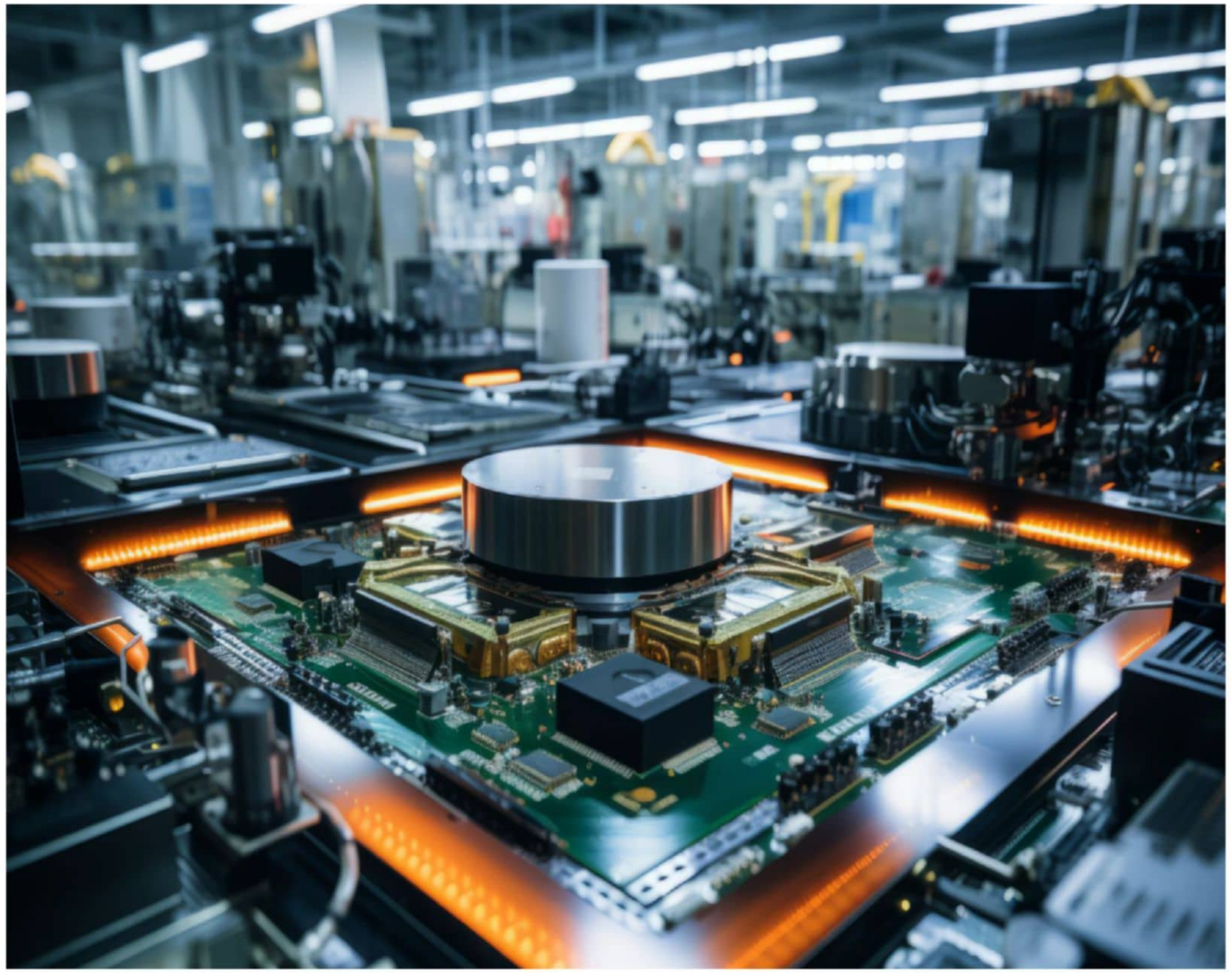
RS PRO Maintenance Solutions for Efficient Industrial Operations

RS Group offers a comprehensive range of RS PRO maintenance solutions designed for industrial MRO professionals, supporting reactive, preventative, and predictive maintenance. Their portfolio includes tools, connectors, switches, fasteners, sensors, relays, enclosures, test equipment, and more—all rigorously tested for quality, safety, and reliability. These products help improve safety, ensure compliance, reduce downtime, and optimize efficiency across industries. With over 90,000 products and competitive pricing, RS PRO delivers value without compromising performance. Backed by a three-year warranty and the RS PRO Seal of Approval, RS Group supports customers with fast shipping and expert technical assistance to enhance productivity and asset management.

Newark Partners with Altech to Expand Automation Components

Newark, an Avnet company, has partnered with Altech, a U.S.-based manufacturer of industrial automation and control components. This agreement makes Altech's UL-approved, cost-effective products—such as circuit breakers, terminal blocks, power supplies, and enclosures—available to Newark customers across North America. With over 40 years of experience, Altech brings reliable, high-performance solutions to automation, safety, and medical sectors. The partnership enhances Newark's electrical component offerings, providing customers with high-quality alternatives and strong technical support. Executives from both companies expressed enthusiasm for the collaboration, emphasizing shared goals of expanding market reach, supporting engineers, and offering competitively priced solutions for today's budget-conscious buyers.

India's Semiconductor Transformation: From Design Engine to AI Powerhouse



India's semiconductor industry is undergoing a fundamental transformation, one that goes far beyond chip fabrication or design. The sector, once seen primarily as a design support engine within the global electronics value chain, is now evolving into a talent-intensive, AI-driven ecosystem that is reshaping the country's industrial identity and redefining what it means to be an engineer in the digital economy.

This transition is being powered by both ambition and necessity, and by decisive policy direction. The Indian semiconductor market, valued at USD 54.3 billion by 2025, is expected to almost double to USD 103.5 billion by 2030, underscoring the country's rapid shift from a consumption-driven market to a capability-driven one. As design, R&D, and manufacturing enablement gain strategic importance, engineering roles are evolving from operational to innovation-centric, with Artificial Intelligence emerging as the key differentiator.

Globally, semiconductors are witnessing an unprecedented demand surge driven by the AI revolution, data center expansion, automotive electrification, and 5G deployment. While traditional segments such as consumer electronics and IT hardware continue to anchor volumes, the new growth vectors are high-tech and compute-intensive. The rise of Generative AI and large-scale model training has exponentially increased the demand for GPUs, TPUs, NPUs, and AI accelerators, while data centers worldwide are scaling high-bandwidth memory (HBM) and advanced packaging. The automotive sector too has become a semiconductor-intensive vertical, with Electric Vehicles (EVs) and Advanced Driver-Assistance Systems (ADAS) demanding specialized power chips, battery management systems, and microcontrollers. Globally, the AI-related semiconductor market is expected to grow at over 15% annually and could represent a quarter of total demand by the end of 2025. This AI-fuelled supercycle is not just about scale, it is about sophistication. Advanced process nodes, high-bandwidth architectures, and energy-efficient chiplets are becoming the new industrial currency.

Semiconductors today form the invisible foundation of AI, the hardware backbone powering the intelligence layer of the digital economy. Every AI workload, from deep learning model training to real-time inference, ultimately runs on chips optimized for parallel processing and low latency. Nearly half of new System-on-Chip (SoC) programs now include integrated AI accelerators, while many verification teams globally are embedding machine learning into design workflows to enhance efficiency. The integration of AI into chip design is structural, transforming verification, physical design, and embedded systems development. Engineers increasingly use AI models to optimize timing closure, reduce power leakage, and accelerate design signoff, merging silicon engineering with algorithmic intelligence.

In India, GCCs have emerged as the nerve centers of this convergence. Over 55 semiconductor GCCs employ more than 60,000 engineers and are transitioning from design support to full ownership of AI-embedded architectures. These centers are not merely executing design charters, they are defining them, pioneering AI-augmented processes, and co-creating next-generation chip architectures with global teams.

India already boasts one of the world's largest semiconductor talent pools, about 250,000 professionals, projected to reach 400,000 by 2030. Yet, demand is shifting toward niche specializations that bridge AI and silicon, such as AI accelerator architecture and hardware-aware compilers. While Bengaluru, Hyderabad, and NCR remain core hubs, Tier-2 cities like Ahmedabad, Mohali, and Thiruvananthapuram are emerging as new semiconductor clusters, driven by policy-linked incentives and academic partnerships.

India's policy ecosystem has been the single most decisive catalyst in accelerating the sector's growth. The India Semiconductor Mission (ISM), launched in 2022 under the Semicon India Programme, anchors the country's semiconductor vision. With an outlay exceeding ₹76,000 crore, the mission offers up to 50% fiscal support for semiconductor fabs, display fabs, compound semiconductor facilities, and ATMP/OSAT units. Complementary schemes, such as the Design Linked Incentive (DLI) and the Production-Linked Incentive (PLI), further strengthen India's design-to-fab value chain by reimbursing up to half of eligible design costs and rewarding domestic manufacturing output. Parallel to central initiatives, several states have introduced targeted semiconductor policies offering land subsidies, utility concessions, and single-window clearances to attract global investors. Programs such as Electronics Manufacturing Clusters (EMC) and the Scheme for Promotion of Manufacturing of Electronic Components & Semiconductors (SPECS) are building the critical infrastructure backbone required to support large-scale chip ecosystems.

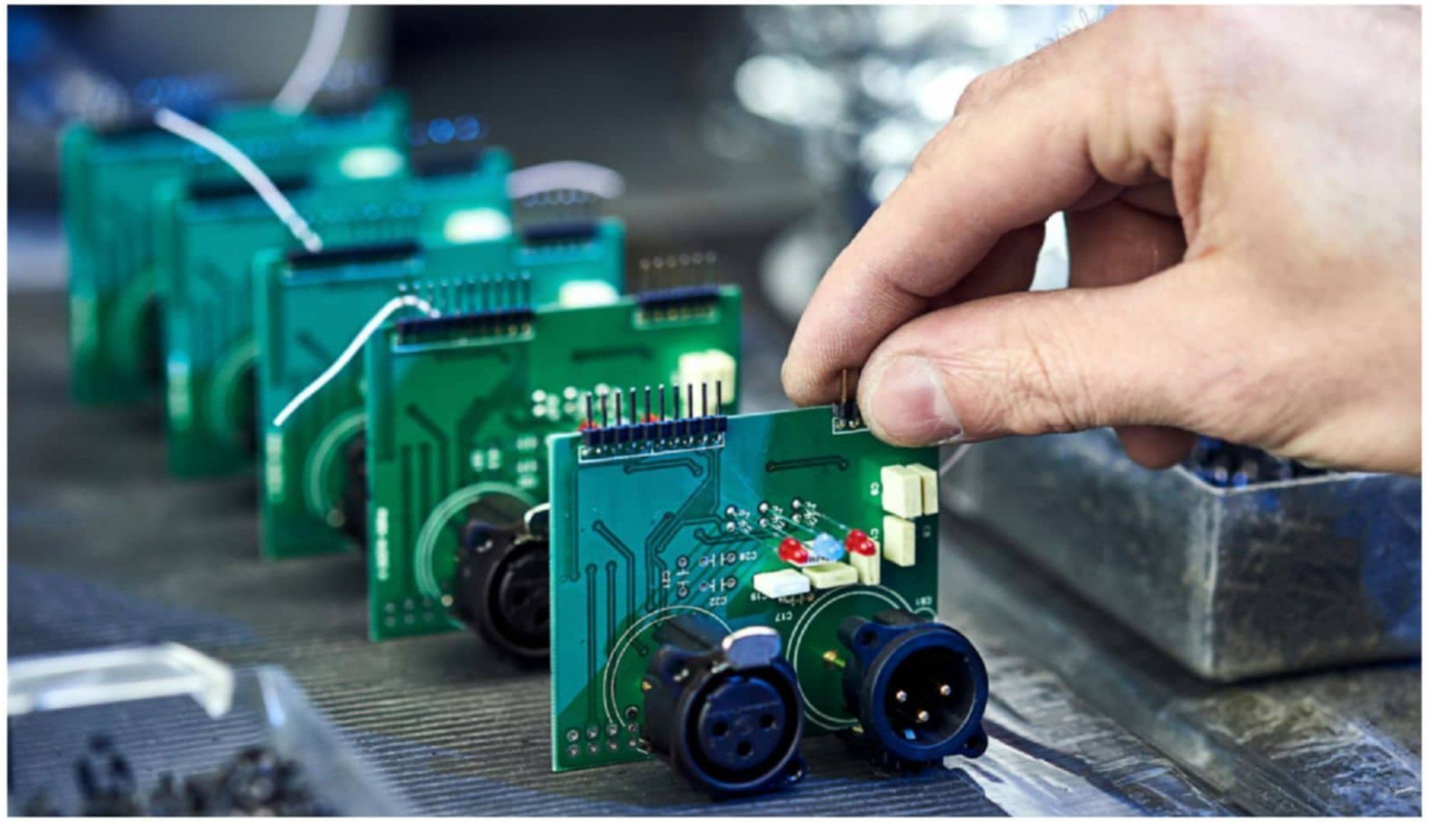
The ₹1.6 lakh crore in cumulative public-private investments now powering India's semiconductor ecosystem reflects not just industrial ambition but national strategy, reducing import dependency, strengthening supply chain resilience, and establishing an indigenous base for advanced electronics. Alongside fiscal support, India's emphasis on skilling and academia-industry collaboration is nurturing the next generation of engineers in VLSI, AI-chip design, and embedded systems. Universities, research institutions, and Global Capability Centres (GCCs) are increasingly working together to translate policy momentum into capability creation.

India's semiconductor story is no longer about factories, it is about foundations. With decisive government intervention, global market tailwinds, and AI at its core, the country is transitioning from a participant to a protagonist in the global semiconductor narrative. As AI and chip engineering converge, India's workforce is evolving into one of the most sought-after ecosystems in the world. The semiconductor revolution, at its heart, is a human capital revolution, engineers who design intelligence itself. The coming decade will not just produce more chips; it will produce a new generation of AI-first engineers defining the future of intelligent systems.

Kapil Joshi
CEO, Quess IT Staffing

> *“The automotive sector too has become a semiconductor-intensive vertical, with Electric Vehicles (EVs) and Advanced Driver-Assistance Systems (ADAS) demanding specialized power chips, battery management systems, and microcontrollers.”*

India: A Key Pillar of TDK's Global Strategy



India has emerged as a strategic powerhouse in the global electronics ecosystem, combining robust economic growth, supportive policies, and a vast talent pool. It is the fastest-growing major economy in the world and became its most populous nation in early 2023. The Indian government's push for self-reliance – from the "Make in India" initiative to 13 Production Linked Incentives (PLI) schemes across various sectors including electronics & Component and the multibillion dollar "India Semiconductor Mission" – is catalyzing domestic manufacturing and infrastructure development.

As a result, India's electronics industry is scaling rapidly toward a projected USD 500 billion market by 2030, powered by surging local demand in sectors like automotive, renewable energy, industrial modernization, and digital technologies. This trajectory is also shaped by the global "China+1" strategy, as multinational companies diversify manufacturing and R&D footprints into India to strengthen resilience. For global companies like TDK, India's rise presents an unprecedented opportunity: to innovate at scale, tap into world-class engineering talent, and build a more reliable supply chain at the heart of a burgeoning market.

"India will remain a cornerstone of our global strategy. We are confident that our expanding presence will further strengthen our ability to serve both domestic and international markets." — **Gagan Bansal, President of Sales and Marketing, TDK India**

Investing in India for Innovation and Resilience

TDK's commitment to India dates back to the mid-1990s, when it was among the pioneers establishing large-scale component manufacturing in the country. Over the decades, the footprint has grown steadily: today, TDK operates six factories across India producing components from film capacitors in Nashik to ferrite cores in Kalyani, alongside advanced battery cells and packs in Bawal and Manesar. Most recently, a state-of-the-art ATL battery facility was inaugurated in Sohna, which, according to Bansal, will play a "pivotal role in supporting our rapidly growing energy solutions portfolio."

By growing its manufacturing presence locally, TDK not only increases capacity but also strengthens global supply chain resilience – diversifying production geographies and ensuring customers have reliable access to critical components even amid disruptions. Beyond manufacturing, India is fast becoming a hub for R&D and engineering excellence. TDK has established four major engineering and sales centers – in Mumbai, Bangalore, Pune, and Noida – to stay close to customers and market trends. A new magnetic design lab for transformers and a large R&D facility under TDK-Lambda are being built in Bangalore, positioning the city as a nucleus for advanced product development.

Innovation in India also extends to the startup ecosystem. TDK is partnering with high-potential ventures in fields ranging from agritech (FASAL) and industrial analytics (Infinite Uptime) to EV batteries (Exponent Energy) and next-generation mobility (Ultraviolette Automotive). Supporting grassroots innovators such as Healyantra in medtech reflects a long-term commitment to nurturing India's entrepreneurial spirit. These collaborations bring agility and local insight into TDK's portfolio, accelerating the development of tailored solutions for Indian and global markets.

This multifaceted growth strategy is timed with India's own upward trajectory. TDK forecasts the Indian electronics market to grow at 8–10% annually over the next five years, fueled by infrastructure build-out and rising domestic demand. Crucially, the areas where India is investing most heavily – ICT, EVs, renewable energy, and smart infrastructure – directly align with TDK's core competencies, creating a virtuous cycle of national priorities and corporate expertise.

Powering India's High-Growth Sectors

India's development agenda highlights several high-growth sectors where electronics and digital technologies are vital. TDK is uniquely positioned to accelerate these transitions through its broad portfolio of components, energy solutions, and sensor technologies.

- Electric Mobility (EVs): India's e-mobility revolution is accelerating, with over 19 million EVs already on the road in 2025. Ambitious 2030 targets – 80% of two-/three-wheelers and 40% of buses to be electric – will transform transport. Backed by subsidies and charging infrastructure, this creates vast demand for advanced batteries and power electronics. By localizing battery production and partnering with EV startups, TDK is helping India electrify at scale while securing a strong position in a market expected to approach 80 million EVs by 2030.
- Renewable Energy & Smart Grids: India is targeting 500 GW of renewable energy capacity by 2030. At the same time, programs like the Revamped Distribution Sector Scheme (RDSS) will deploy 250 million smart meters by 2026. From grid stability to rooftop solar integration, TDK enables this shift with energy-efficient capacitors, harmonic filters, and advanced surge protection – making the clean energy transition more efficient and reliable.
- Railways & Infrastructure: With USD 500 billion earmarked for electrification, new age trains, basic infrastructure and overall upgrades by 2030, India's railway modernization is unprecedented. TDK supports this through high-reliability Power capacitors, inductors, filters, and surge protection devices that provide traction and help safeguard both infrastructure and onboard systems, ensuring safe and uninterrupted mobility for millions.
- Data Centers & Digital Infrastructure: As India becomes the world's digital hub – with booming fintech, e-commerce, and cloud services – next-generation data centers are critical. TDK contributes with thermal management materials, EMI suppression, and power conversion modules, ensuring stable, energy-efficient operations that can handle exponential data growth.
- Consumer & Industrial Electronics: Rising incomes and urbanization are spurring demand for energy-efficient appliances and advanced industrial automation. TDK supports OEMs with motor run capacitors, sensors, actuators, and power solutions that enhance energy efficiency, safety, and connectivity – enabling everything from smart homes to smart factories.

India at the Core of TDK's Future Strategy

India is not only a high-growth market but also a critical node in the global electronics value chain. India is no more China +1, instead powered by over 1700 global competency centers across various verticals, it's a formidable force to recon with and a strategic worldwide alternative. TDK's strategy recognizes this reality: by investing in local production, R&D, and partnerships, the company contributes directly to India's aspirations while leveraging the country's strengths for global competitiveness.

Breakthroughs and efficiencies achieved in India – whether in EV batteries, renewable integration, or digital infrastructure – are increasingly influencing TDK's global operations. This synergy enhances agility, responsiveness, and innovation across the corporation.

Looking ahead, India offers a scale and diversity of opportunity that few countries can match. Its large talent pool of 1.5 million engineers graduating annually, combined with government-backed policies, makes it a testing ground for innovation and a springboard for global growth.

As Bansal emphasizes: *"By combining local strengths with TDK's global expertise, we are helping customers bring new technologies to market faster and more reliably. India's success and TDK's success are deeply intertwined."*

Gagan Bansal
President of Sales and Marketing, TDK India

> *"By combining local strengths with TDK's global expertise, we are helping customers bring new technologies to market faster and more reliably. India's success and TDK's success are deeply intertwined."*

Infineon Launches MOTIX SoC Family for Compact, Cost-Efficient Motor Control

Infineon
MOTIX™ TLE994x

Infineon has introduced its MOTIX™ SoC family, a series of highly integrated motor-control solutions that combine a 32-bit Arm® Cortex® MCU, power drivers, and communication interfaces on a single chip. Designed for compact, cost-efficient motor systems, these SoCs reduce external components and PCB space while enhancing performance and reliability. Ideal for automotive and industrial use, they support brushed DC, BLDC, and 3-phase motors with options for CAN-FD, LIN, and ISO 26262 safety compliance.

Features :

- Integrated MCU + driver + peripherals in one chip
- Supports DC, BLDC, and 3-phase motors
- Communication: LIN, CAN, CAN-FD
- Compact, cost-efficient design reduces BOM
- Functional safety (ISO 26262) and secure boot features

Availability:
Available Now

Melexis Launches Code-Free LIN LED Driver: MLX80124

SMART LED DRIVER ICs
code-free driver for ambient lighting
MLX80124
Melexis

Melexis has introduced the MLX80124, a code-free LIN RGB LED driver that simplifies automotive lighting design. Instead of writing firmware, engineers can configure lighting effects using a graphical interface. The driver integrates a LIN transceiver, controller, and high-voltage current sources, enabling precise color control and easy network integration. Ideal for ambient lighting, it reduces development time and cost while maintaining automotive-grade reliability and ISO 26262 ASIL B safety compliance.

Features

- Code-free configuration via GUI
- Integrated LIN transceiver and controller
- Supports up to 4 RGB LED channels
- 16-bit PWM with color-temperature compensation
- AEC-Q100 qualified and ASIL B compliant

Availability:

Diodes Inc. Launches Automotive-Grade ReTimer for High-Speed USB & DisplayPort Connectivity

DIODES
PI2DPT1021Q
USB TYPE-C

Diodes Incorporated has launched the PI2DPT1021Q, an automotive-grade retimer designed for high-speed USB 3.2 and DisplayPort 1.4 connectivity in vehicles. Supporting data rates up to 10 Gbps, the device ensures reliable signal integrity for infotainment systems, digital clusters, and smart cockpits. With ultra-low latency and adaptive equalization, it compensates for signal losses over long cables, offering robust, high-performance connectivity for next-generation automotive designs.

Features

- Supports up to 10 Gbps data rates
- Compatible with DisplayPort 1.4 and USB 3.2 Gen 2
- Ultra-low latency (< 1 ns) bi-directional operation
- Receiver adaptive equalization for up to −23 dB loss
- Automotive-qualified (AEC-Q100 Grade 1, −40 °C to +105 °C)

Availability:
Available Now

Microchip Launches Integrated Wireless MCU for Advanced Connectivity

Microchip Technology has introduced the PIC32-BZ6, a highly integrated single-chip wireless MCU designed for advanced connectivity, touch, and motor control applications. Supporting multi-protocol wireless standards such as Bluetooth LE, Thread, and Matter, it combines powerful processing, large memory, and robust security in one platform. The device simplifies system design, reduces BOM costs, and accelerates development for smart home, industrial, and automotive applications requiring reliable, connected performance.

Features

- Multi-protocol wireless support: Bluetooth LE, Thread, Matter
- 2 MB Flash and 512 KB RAM for complex applications
- Integrated CAN-FD, Ethernet, USB, and analog peripherals
- Secure boot and hardware-based encryption engine
- Automotive and industrial-grade reliability (AEC-Q100 Grade 1)

Availability:
Available Now

Infineon Launches Rad-Hard Buck Controller for Space Systems

Infineon Technologies has introduced the RIC70847, the industry's first radiation-hardened buck controller with an integrated gate driver, built specifically for space applications. Supporting input voltages from 4.75 V to 15 V and outputs from 0.6 V to 5.25 V, it delivers efficient and reliable power conversion for satellite payloads and space-grade electronics. With high radiation tolerance and wide temperature support, it ensures robust operation in harsh orbital and deep-space environments.

Features

- Radiation-tolerant up to 100 krad (Si) and LET of 81.9 MeV·cm^2/mg
- Input range: 4.75 V–15 V; output: 0.6 V–5.25 V
- Integrated 5 V half-bridge gate driver for compact design
- Operates from −55 °C to +125 °C for extreme environments
- Ideal for satellite payloads, FPGA/ASIC power rails, and PoL converters

Availability:
Available Now

Vishay Launches DLA-Approved Capacitors for AMS Systems

VISHAY
106
25

Vishay Intertechnology has introduced the DLA 04051 series of vPolyTan™ polymer surface-mount chip capacitors, approved by the U.S. Defense Logistics Agency for use in aerospace, military, and space (AMS) systems. These capacitors deliver ultra-low ESR, wide capacitance and voltage ranges, and exceptional mechanical robustness. Engineered for mission-critical reliability, they are ideal for power supplies, radar, transponder, and energy-storage applications in demanding AMS environments.

Features

- Ultra-low ESR down to 25 mΩ for high efficiency
- Capacitance: 4.7 µF – 680 µF; Voltage: 2.5 V – 63 V
- 2000 hours reliability at 125 °C; shock resistance up to 500 g
- Qualified to MIL-STD-202 standards for vibration and thermal shock
- Designed for high-reliability AMS power and signal systems

Availability:
Available Now

Littelfuse Launches IX3407B Isolated Gate Driver

Littelfuse has introduced the IX3407B, a single-channel, galvanically isolated gate driver designed for high-voltage power systems. It delivers up to 7 A peak source and sink current, integrates 2.5 kV RMS capacitive isolation, and supports TTL/CMOS logic inputs. The device is built for high-speed switching, high common-mode transient immunity (CMTI), and industrial/renewable power applications such as motor drives, solar inverters and UPS systems.

Features

- Up to 7 A peak source and sink current for precise gate control.
- 2.5 kV RMS input-to-output isolation via capacitive coupling.
- Wide output driver supply range (13 V to 35 V) compatible with MOSFETs/IGBTs/SiC devices.
- High CMTI rating (≈150 kV/µs) and fast turn-on/off performance.
- Active shutdown (ASD) and undervoltage lock-out (UVLO) protections.

Availability:
Available Now

Teradyne Launches ETS-800 D20 Automated Power Semiconductor Tester

Teradyne, Inc.'s ETS-800 D20 is a next-generation automated test system tailored for power semiconductors and automotive / industrial devices. It is built on a scalable multi-sector architecture that allows high site-count testing (up to 20 slots in the "D20" configuration) and integrates mixed-signal instrumentation to deliver high throughput, low cost-of-test, and rapid time-to-market for complex power ICs, MOSFETs, IGBTs, SiC/GaN devices and automotive grade analog / power modules.

Features

- Multi-sector architecture permits up to 20 test sites in the D20 variant, enabling parallel testing and high throughput.
- Broad analog/digital test coverage to address power management, automotive power stages, regulators and smart power ICs.
- Precision instrumentation and repeatable internal specifications ensure production-grade test quality across sites.
- Designed for reduced engineering and test development time through standardized software and hardware platforms.

Availability:
Available Now

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